# WASHINGTON DEPARTMENT OF FISH AND WILDLIFE

# DESCRIPTION OF FISH AND WILDLIFE DIGITAL DATA

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## INTRODUCTION

This document describes digital fish and wildlife data available from the Washington Department of Fish and Wildlife (WDFW). It covers general background information on data compilation methods, data organization, structure, and details on using the digital data.

Data described here are contained in four data sets, three of which are managed by WDFW with Arc/Info geographic information system (GIS) software. The data sets covered in this document represent WDFW's knowledge of fish and wildlife resources and occurrences based on research and field surveys conducted over the past 20 years. It is important to note, however, that priority habitats or species may occur on the ground in areas not currently known to WDFW biologists, or in areas for which comprehensive surveys have not been conducted. Site-specific surveys are frequently necessary to rule out the presence of priority species or habitat types. These data sets are:

**Priority Habitats and Species (PHS)** - An inventory of key species use areas and key fish and wildlife habitats (usually polygonal) based on expert empirical knowledge. These data include locations of federal and state listed species (threatened, endangered, sensitive, candidate) and other priority non-game and game species.

**Wildlife Heritage (HRTG)** - A database containing significant site observations (point occurrences) of non-game species of concern, including federal and state listed species, obtained by surveys or observations by reputable sources.

**Washington Rivers Information System (WARIS)** - A statewide inventory of anadromous and resident fish distribution, including priority, federal, and state listed species.

**National Wetlands Inventory (NWI)** - An inventory identifying wetlands and deep water habitats based on data derived from high altitude color infrared aerial photographs. NWI data is managed by the Washington Department of Ecology.

These data do not represent exhaustive inventories. They are compilations of existing knowledge from field biologists that are updated as knowledge improves. Because these fish and wildlife data are not exhaustive and subject to change, project review for fish and wildlife should not rest solely on digital priority habitats and species data. Instead, they should also consider new information gathered from field investigations.

Also, because these data are dynamic, information should not be used if over six months old; please request updated data rather than use old information.

Some information on specific locations of fish and wildlife is considered sensitive by the Director of WDFW and will be released in a standard format only. This format may be either tabular, digital, and/or displayed on a 1:24,000 map. WDFW standard map format consists of fish and wildlife information displayed for an individual section with a one square mile buffer (nine square miles total). WDFW will release sensitive fish and wildlife information covering an area greater than thirty square miles to the following parties in conjunction with the signing of the sensitive Fish and Wildlife Information Memorandum of Understanding (MOU).

- Government agencies
- Tribes
- Researchers affiliated with an accredited college or university
- Landowners (for their lands), or other parties with permission from the landowner
- Agents of the above parties (e.g., consultants, realtors, etc.)

This MOU indicates that the signatory person or agency recognizes the appropriate guidelines for disseminating sensitive fish and wildlife information. For additional information contact the WDFW at (360) 902-2543.

Other data sets that are not part of the standard data release are available. These are the Spotted Owl Site Center Database, Game Management Units, Western Washington Late Successional Stand Data, NOAA Seabird Colonies 1989, Water Resource Inventory Areas, and Watershed Analysis Units. All except the Spotted Owl Database can be requested without a MOU. General descriptions about these data sets will be furnished upon request.

## PRIORITY HABITATS AND SPECIES DATABASE

**Data Manager:** Terry Johnson
(360) 902-2494

### General Description

The Washington Department of Fish and Wildlife (WDFW) has developed and maintains the following products:

1. A list of priority habitats and species;
2. Map locations of priority habitats and species at 1:24,000 scale. Areas delineated on maps are to be supported by descriptive information entered on a standard data form;
3. A geographic information system that provides access to the maps and tabular information;
4. Management recommendations for priority habitats and species.

The Priority Habitats and Species (PHS) Database consists of polygons or points that describe occurrences of priority habitats and species. All priority species mapped areas represent known use areas; they are not potential habitats. Priority habitats are areas that support diverse, unique and/or abundant communities of fish and wildlife. Locational data are associated with reports detailing each priority habitat and species.

PHS data are compiled by WDFW biologists using the best information available from research efforts, surveys, or field observations. The exact source of each delineated feature is described in the associated attribute files. These data represent known occurrences of priority habitats and species, not potential or theoretical.

Point locations of priority non-game species are also contained in the Wildlife Heritage Database. Additionally, some game and non-game fish species are considered priority species; data on their distribution is contained in the Washington Rivers Information System.

PHS data are supported by documents titled *Management Recommendations for Washington's Priority Habitats and Species*. These management recommendations are developed with a thorough review of the best scientific literature available. They provide important background information on each species or habitat type and recommendations for conducting land uses that consider the needs of fish and wildlife. When a priority habitat or species occurs in or near a project site, these management recommendations should be consulted to determine how to modify the project in consideration of fish and wildlife needs.

## Resolution and Limitations

PHS data are compiled on 1:24,000 scale topographic maps. A code is used on supporting data forms, indicating the locational accuracy of the feature as determined by the field biologist doing the mapping. Accuracy ranges from within one-quarter mile to general area.

These data are not an exhaustive inventory of priority habitats and species in the state. They represent the best knowledge of WDFW field biologists. The database is updated as knowledge improves.

Priority habitat data on old growth are not routinely provided. A separate request must be made to obtain these data. Wetland data largely consists of the US Fish and Wildlife Service National Wetland Inventory (NWI). NWI data is included in the data we provide, though only for small areas. For larger areas, NWI digital data can be obtained from the Washington Department of Ecology.

## Data Organization and Structure

The digital data is grouped into coverages corresponding to US Geological Survey (USGS) 1:24,000, 7.5-minute scale topographic maps. Coverages are named based upon a seven digit numeric code described in Appendix A. Coverage names are preceded with 'P' if they contain points and 'A' if they contain area or polygon data. A coverage named INDEX which contains the boundaries of the 7.5-minute quadrangles for Washington state is included. It can be used to cross-reference the quadcode with the standard USGS quadrangle name.

All spatial information is in State Plane South coordinates (Zone 5626), North American Datum of 1927.

The data structure for PHS polygonal data is not simple. It utilizes a cross-reference INFO (PHSXREF) table to tie polygons in the coverages to descriptive information in a set of extended attribute tables (PHSEO, PHSDSCRP, PHSSRC, and PHSLULC). In other words a polygon may be described by one or many records in the extended attribute tables. A polygon might represent an intersection of elk winter range and a bald eagle communal roost. This makes use of the data in Arc/Info somewhat cumbersome without the aid of macros. The data description for PHSXREF describes some strategies for using the data.

In contrast, the relationship between PHS points and the extended attributes are one-to-one using the key field EOFORM. Use of the cross-reference file is not needed.

Please keep in mind that the data is DRAFT. The data has not been fully edited. In most cases, errors are minor. If you encounter significant errors, please contact Terry Johnson at (360) 902-2494 or the Department's regional habitat biologist. The data definitions and structure presented here are subject to change.

Data on specific locations of some fish and wildlife species is considered sensitive and access to that information is restricted by WDFW policy. If your request required a sensitive Fish and Wildlife Information Release Memorandum of Understanding (MOU) and you or your organization has one on file, please refer to that document for conditions regarding these data.

**DATA STRUCTURE NAME:** PHS quadrangle coverage

P<quadrangle code>
A<quadrangle code>

**DATA STRUCTURE TYPE:** Arc/Info coverage

This collection of files represents a standard Arc/Info coverage. It contains polygon or point data for fish, wildlife, and habitats mapped as priority habitats and species at WDFW. In the following documentation this type of coverage is referred to as a PHS quadrangle coverage.

Coverages with names starting with 'P' are point coverages. Those starting with 'A' are area or polygon coverages. The balance of the cover name is WDFW's standard seven digit quadrangle code.

Limited attributes are stored in the PAT (polygon/point attribute table) associated with the coverage. The item 'PHSID' in the PAT serves as a key field linking the coverage data to a cross-reference file, PHSXREF, which in turn provides the linkage to the extended attribute tables, PHSEO, PHSDSCRP, PHSSRC, and PHSLULC. These tables contain information about the point or polygon as recorded by field staff on standard data forms. Please see the discussion of PHSXREF for more information about this linkage.

**DATA STRUCTURE:** PHS polygon coverage

| ITEM NAME | WDTH | OPUT | TYP | N.DEC | DESCRIPTION |
|---|---|---|---|---|---|
| AREA | 8 | 18 | F | 5 | Map area of feature. Expressed in square feet. |
| PERIMETER | 8 | 18 | F | 5 | Perimeter of feature. Expressed in feet. |
| PHSPOLY# | 4 | 5 | B | - | Internal identifier |
| PHSPOLY-ID | 4 | 5 | B | - | User identifier |
| FORMLIST | 120 | 120 | C | - | Concatenation of form numbers associated with the point or polygon as mapped for PHS. Each form number is six digits wide and separated from the other form numbers with an intervening dash. |

**DATA STRUCTURE:** PHS polygon coverage (continued)

| ITEM NAME | WDTH | OPUT | TYP | N.DEC | DESCRIPTION |
|---|---|---|---|---|---|
| FORMLIST (cont.) | 120 | 120 | C | - | The form number '900000' indicates the area was not mapped or the presence of a priority species was not known. The form numbers '909998', '909997', and '909996' indicate an unresolved compilation error. |
| QUADCODE | 4 | 7 | B | - | WDFW standard 7 digit number identifying the USGS quadrangle containing the information. |
| PHSID | 4 | 8 | B | - | Number assigned to the point or polygon uniquely identifying it statewide. This number links the record to one or many records in the PHSXREF file. |

**DATA STRUCTURE:** PHS point coverage

| ITEM NAME | WDTH | OPUT | TYP | N.DEC | DESCRIPTION |
|---|---|---|---|---|---|
| AREA | 4 | 12 | F | 3 | Unused |
| PERIMETER | 4 | 12 | F | 3 | Unused |
| PHSPT# | 4 | 5 | B | - | Internal identifier |
| PHSPT-ID | 4 | 5 | B | - | User identifier |
| EOFORM | 4 | 7 | B | - | Data form number links with PHS attribute tables PHSEO, PHSSRC, PHSDSCRP, and PHSLULC in a one-to-one relationship. |
| QUADCODE | 4 | 7 | B | - | WDFW standard 7 digit number identifying the USGS quadrangle containing the information. |

**DATA STRUCTURE NAME:** PHSEO

**DATA STRUCTURE TYPE:** INFO table

This file contains descriptive information about polygons mapped as priority habitats and species at WDFW and contained in PHS quadrangle coverages.

| ITEM NAME | WDTH | OPUT | TYP | N.DEC | DESCRIPTION |
|---|---|---|---|---|---|
| EOFORM | 4 | 7 | B | - | Number identifying data form on which descriptive information was originally recorded. This field serves to link this file to the cross-reference file, PHSXREF. |
| BATCHID | 6 | 6 | C | - | Data entry batch number. |
| EOCODE | 6 | 6 | C | - | Code identifying species or habitat. See the appendices for codes used. |
| CRIT | 3 | 3 | C | - | Mapping criteria/species use. See appendices for codes used. |
| SEASON | 5 | 5 | C | - | Season of use. Use is indicated by the presence of a non-blank character in one or more 'positions' or substrings of the field.<br>Position 1 = winter use (W)<br>2 = spring use (S)<br>3 = summer use (U)<br>4 = fall use (F)<br>5 = severe winter use (S). |
| DEF | 5 | 5 | C | - | Mapping criteria definition. |
| COORD | 1 | 1 | I | - | Mapping accuracy.<br>1 = within a quarter mile<br>2 = accurate within one-half mile<br>3 = accurate within one mile<br>4 = general locality |
| MODWHO | 25 | 25 | C | - | Last person to modify the record. |
| MODDATE | 6 | 6 | I | - | Date of last modification of the record. |

**DATA STRUCTURE NAME:** PHSSRC

**DATA STRUCTURE TYPE:** INFO table

This INFO file contains SOURCE OF INFORMATION from the data forms. One data form can be supported by multiple sources of information blocks.

| ITEM NAME | WDTH | OPUT | TYP | N.DEC | DESCRIPTION |
|---|---|---|---|---|---|
| EOFORM | 4 | 7 | B | - | Number identifying data form on which descriptive information was originally recorded. This field serves to link this file to the cross-reference file, PHSXREF. |
| BATCHID | 6 | 6 | C | - | Data entry batch number. |
| SRCCODE | 6 | 6 | C | - | Coded field identifying the source of information. See the appendices for codes used. |
| SRCDATE | 6 | 6 | C | - | Date of source of information. |
| SRCLEAD | 70 | 70 | C | - | Source of information in modified literature citation format. |
| SRCSYN1 | 80 | 80 | C | - | Source synopsis. Brief narrative describing content of source. |
| SRCSYN2 | 80 | 80 | C | - | Source synopsis (continuation record). |
| MODWHO | 25 | 25 | C | - | Last person to modify the record. |
| MODDATE | 6 | 6 | I | - | Date of last modification of the record. |

**DATA STRUCTURE NAME:** PHSLULC

**DATA STRUCTURE TYPE:** INFO table

This INFO file contains coded land use/land cover information recorded on the data form. One form can be described by one to three records. For some forms, land use/land cover was not recorded. The information in this file is generally subjective in nature and has not been derived from a structured inventory.

| ITEM NAME | WDTH | OPUT | TYP | N.DEC | DESCRIPTION |
|---|---|---|---|---|---|
| EOFORM | 4 | 7 | B | - | Number identifying data form on which descriptive information was originally recorded. This field serves to link this file to the cross-reference file, PHSXREF. |
| BATCHID | 6 | 6 | C | - | Data entry batch number. |
| LULCCODE | 3 | 3 | I | - | Land use/land cover code. See appendices for codes used. |
| LULCPER | 3 | 3 | I | - | Percentage of total polygon area associated with the data form described by LULCCODE. Generally, this percentage is a rough estimate made by the mapper. |
| LULCDATE | 6 | 6 | C | - | Date of information. |
| LULCSRC | 6 | 6 | C | - | Coded field identifying the source of the information. See the appendices for codes used. |
| MODWHO | 25 | 25 | C | - | Last person to modify the record. |
| MODDATE | 6 | 6 | I | - | Date of last modification of the record. |

**DATA STRUCTURE NAME:** PHSDSCRP

**DATA STRUCTURE TYPE:** INFO table

This file contains narratives describing the priority areas as recorded on the data form.

| ITEM NAME | WDTH | OPUT | TYP | N.DEC | DESCRIPTION |
|---|---|---|---|---|---|
| EOFORM | 4 | 7 | B | - | Number identifying data form on which descriptive information was originally recorded. This field serves to link this file to the cross-reference file, PHSXREF. |
| BATCHID | 6 | 6 | C | - | Data entry batch number. |
| SITENAME | 50 | 50 | C | - | Site name. Name assigned by mapper based on one or more prominent geographic features in the vicinity. |
| GENDES1 | 80 | 80 | C | - | General description. |
| GENDES2 | 80 | 80 | C | - | General description (continuation). |
| GENDES3 | 80 | 80 | C | - | General description (continuation). |
| RECORDER | 25 | 25 | C | - | Name of individual entering information on the data form. |
| MAPPER | 25 | 25 | C | - | Name of individual doing the mapping. |
| COMPDATE | 6 | 6 | C | - | Date information was compiled. |
| MODWHO | 25 | 25 | C | - | Last person to modify the record. |
| MODDATE | 6 | 6 | I | - | Date of last modification of the record. |

**DATA STRUCTURE NAME:** PHSXREF

**DATA STRUCTURE TYPE:** INFO table

This file serves as a cross-reference to link the polygon or point information in the PHS quadrangle coverage with the PHS descriptive tables, PHSEO, PHSSRC, PHSDSCRP, and PHSLULC.

One polygon can be associated with multiple descriptive records (e.g., in the file PHSEO) and one descriptive record can describe multiple polygons. For example, a polygon may be described on one data form as an elk winter range and on another as an elk migration corridor. The data form describing the migration corridor may apply to several polygons on the map as the corridor 'intersects' other priority areas or crosses a map boundary. This type of relationship is called a 'many to many' relationship in database jargon. It is not handled well by the Arc/Info software and data structure. This cross-reference file addresses this problem.

The file contains one record for every unique pairing in the database of PHSID (a unique polygon identifier) and EOFORM (a unique form or descriptive record). From the perspective of this file, the relationship to both the PHS quadrangle coverage and the PHS descriptive tables is many to one. This structure is generally better handled by relational databases used in GIS technology (particularly Arc/Info) than is the many to many relationship described above.

To select polygons from a PHS quadrangle coverage based on descriptive information in PHSEO, the following general steps are used in Arc/Info.

1. The PHSXREF file is related to the PHSEO file using the field, EOFORM as the key or linking field. The desired records are re-selected based on user-specified values for one or more fields in PHSEO.

2. The field PHSID, which is a unique polygon identifier, is placed in a temporary lookup table.

3. The coverage or <cover name>.PAT file is related or linked to the lookup table using PHSID as the key or related field. All polygons which have a 'hit' in the lookup table are associated with the descriptive values specified by the user in step 1.

Rather than use temporary lookup tables, an alternative is to create permanent tables representing various combinations of descriptive values of common interest. For example, an elk winter range table can be created by selecting PHSEO records where **SPPCODE = 'CEEL'** and **SEASON = 'W'** or **SEASON = 'S'** and saving PHSID from the PHSXREF file to the newly created table. This table can then be related to the PAT of the PHS quadrangle coverage to select 'hits' as described above.

**DATA STRUCTURE:** PHSXREF (continued)

| ITEM NAME | WDTH | OPUT | TYP | N.DEC | DESCRIPTION |
|---|---|---|---|---|---|
| PHSID | 4 | 10 | B | - | A unique statewide polygon number associated with a single polygon. This field links the record to a single record in the PAT of the PHS quadrangle coverage. Multiple records in this file may use the same PHSID (MANY TO ONE). |
| EOFORM | 4 | 7 | B | - | Field that links or relates record to a single record in the descriptive files PHSEO, PHSSRC, PHSLULC, and PHSDSCRP. Multiple records may link or relate to a single descriptive file record (MANY TO ONE). |
| QUADCODE | 4 | 7 | B | - | WDFW standard 7 digit number identifying the USGS quadrangle containing the information. |

## WILDLIFE HERITAGE DATABASE

**Data Manager:** Tom Owens
(360) 902-2489

### General Description

The Wildlife Heritage (HRTG) Database contains information on documented point observations of non-game species of concern, state and federal listed species including those designated as endangered, threatened, sensitive, candidate, and monitor. This database was developed in the early 1980s and formed the beginning of the Priority Habitats and Species (PHS) Database. Together, PHS and HRTG provide locational data on important fish and wildlife.

HRTG data are collected by a variety of means from field surveys to reports from reputable sources. Scope of the database is statewide and encompasses over 230 species. The database is continually updated. High priority species are surveyed either every year or every five years. Lower priority species are surveyed as field logistics allow or on a less rigorous schedule.

### Resolution and Limitations

Positionally accurate data for current observations are represented as point locations. These data are at least accurate to within a quarter section of the Public Land Survey (PLS). Older and less positionally accurate data are reported by PLS section.

Only the most current (1978 and later) and accurately known data will be supplied as point-specific data on maps. All other data will only be provided in response to special requests. Using these data requires consultation with Washington Department of Fish and Wildlife (WDFW) biologists.

Since state and federal agencies are responsible for developing and implementing conservation strategies for the spotted owl, these data will not be routinely provided. If you require spotted owl data, a special request must be made.

This database contains information on species locations with direct regulatory implications. It is updated constantly, therefore, it is essential that users obtain regular (6 month) updates before using these data for future projects.

## Data Organization and Structure

The digital data is contained within an Arc/Export file ending in E00. HRTG data is in State Plane South coordinates (Zone 5626), North American Datum 1927.

Data on specific locations of some fish and wildlife species is considered sensitive and access to that information is restricted by WDFW policy. If your request required a sensitive Fish and Wildlife Information Release Memorandum of Understanding (MOU) and you or your organization has one on file, please refer to that document for conditions regarding these data.

**DATA STRUCTURE:** <filename>.E00

**DATA STRUCTURE TYPE:** INFO table

| ITEM NAME | WDTH | OPUT | TYP | N.DEC | DESCRIPTION |
|---|---|---|---|---|---|
| INDEX | 6 | 6 | C | - | Phylogenic-based species code. |
| OCCUR | 4 | 4 | I | - | Number assigned sequentially to occurrences of a given species. |
| SEQNO | 2 | 2 | I | - | Sequence number of a point to uniquely identify it from other points composing one occurrence (OCCUR). |
| QUADCODE | 7 | 7 | I | - | WDFW standard 7 digit number identifying the USGS quadrangle containing the information. |
| DATAPT | 3 | 3 | I | - | Sequence number within 7.5-minute quadrangle. |
| TRS | 20 | 20 | C | - | Township, range, section, quarter, and sixteenth section. |
| CLASS | 2 | 2 | C | - | AA = artificial animal (nest platform no used yet)<br>GA = game animal<br>SA = special animal<br>ZA = zapped animal (an occurrence lost to windthrow, development, etc.) |
| COUNTY | 2 | 2 | I | - | FIPS county code. |

**DATA STRUCTURE:** <filename.E00> (continued)

| ITEM NAME | WDTH | OPUT | TYP | N.DEC | DESCRIPTION |
|---|---|---|---|---|---|
| REGION | 1 | 1 | I | - | WDFW region |
| STASTAT | 2 | 2 | C | - | State status<br>SE = state endangered<br>ST = state threatened<br>SC = state candidate<br>SM = state monitor |
| FEDSTAT | 2 | 2 | C | - | Federal status<br>FE = federal endangered<br>FT = federal threatened<br>FP = federal proposed<br>FC2 = federal candidate, category 2<br>F3B = federal candidate, category 3B<br>F3C = federal candidate, category 3C |
| PHCLASS | 1 | 1 | C | - | Phylogenetic class<br>I = invertebrate<br>F = fish<br>A = animal<br>R = reptile<br>B = bird<br>M = mammal |
| PRIORT | 2 | 2 | I | - | Official state listing<br>1 = state endangered<br>3 = state threatened<br>5 = state sensitive<br>7 = state candidate<br>9 = state monitor |

**DATA STRUCTURE:** <filename.e00> (continued)

| ITEM NAME | WDTH | OPUT | TYP | N.DEC | DESCRIPTION |
|---|---|---|---|---|---|
| COORD | 1 | 1 | C | - | Mapping accuracy<br>C = accurate to within 1/4 mile radius and confirmed by a reliable source<br>U = accurate to within 1/4 mile radius and unconfirmed by a reliable source<br>N = accurate to within one mile radius<br>G = location known to general locality |
| CRIT | 5 | 5 | C | - | Mapping criteria<br>B = breeding<br>CR = communal roost<br>IO = individual occurrence<br>RLC = regular large concentrations<br>RSC = regular small concentrations<br>RI = regular individual |
| SPPCODE | 6 | 6 | C | - | Standard WDFW species code (see Appendix G for codes) |
| YEAR | 4 | 4 | I | - | Year of observation |
| OWNCODE | 9 | 9 | C | - | Ownership code (see Appendix I for codes) |
| QUADPT | 10 | 10 | I | - | Internal use |
| XSOUTH | 11 | 11 | C | - | Easting south state plane |
| YSOUTH | 11 | 11 | C | - | Northing south state plane |
| GENDES1 | 80 | 80 | C | - | General description |
| GENDES2 | 80 | 80 | C | - | General description |
| GENDES3 | 80 | 80 | C | - | General description |
| FIRSTDOT | 1 | 1 | C | - | Internal use |

**DATA STRUCTURE:** <filename.E00> (continued)

| ITEM NAME | WDTH | OPUT | TYP | N.DEC | DESCRIPTION |
|---|---|---|---|---|---|
| CRITQUAL | 1 | 1 | C | - | Internal use |
| DTENTER | 8 | 8 | I | - | Date entered |
| DTMOD | 8 | 8 | I | - | Date of last modification of the record |
| CRIT.SYM | 4 | 4 | B | - | Internal use |

## WASHINGTON RIVERS INFORMATION SYSTEM DATABASE

**Data Manager:** Martin Hudson
(360) 902-2487

### General Description

The Washington Rivers Information System (WARIS) Database is a statewide collection of natural resource data related to rivers and streams, and is the Washington component of the Northwest Environmental Database (NED). The database was originally designed for hydropower development and was expanded to provide administrators with natural resource data for planning on a local, statewide, and regional scale. The concept behind WARIS is to include data that are: (1) descriptive, (2) standardized geographically, (3) managed using a geographic information system (GIS), and (4) summarized by a ranking system to identify importance based on resource quality and critical resources.

WARIS is managed using Environmental Systems Research Institute's (ESRI) GIS software Arc/Info on a UNIX platform. The database includes the following: a 1:100,000 scale hydrography layer, resident and anadromous fish, Priority Habitat and Species (PHS) fish, wildlife, and natural features data. Planned categories include recreation sites, cultural and historic features, and institutional constraints.

The Washington Rivers Information System began with the Pacific Northwest Rivers Study, a 1984 effort promoted by the Bonneville Power Administration (BPA) and the states of Idaho, Montana, Oregon, and Washington. The Washington State database is presently managed by the Washington Department of Fish and Wildlife (WDFW) in cooperation with Indian Tribes, and other state and federal agencies. The database is primarily funded by Bonneville Power Authority with WDFW providing indirect funding through updates, technical support, hardware and software support, and administration.

This document provides a description of the five data categories currently in WARIS: (1) anadromous, (2) resident fish, (3) PHS fish, (4) wildlife, and (5) rare plants and plant communities. These data are available in Arc/Info export format or on maps.

### Resolutions and Limitations

WARIS is available statewide at 1:100,000 scale of resolution and is the product of 1989-1990 data collection efforts.

Resident fish information is generalized to a river reach. More site-specific resident fish information is not available through this data set.

The anadromous fish data represent a data compilation effort involving fish experts from many different agencies and organizations. The resident fish data were compiled largely by interviews with WDFW biologists, so it is less comprehensive. About 50 percent of the 1:100,000 scale streams have known resident fish resources that have been described; the rest are unknown.

## Data Organization and Structure

### Hydrography

The 1:100,000 scale hydrography line files serve as the base for WARIS. The hydrography layer is a digital reproduction of the rivers and streams on the 1:100,000 scale US Geological Survey (USGS) quadrangle maps. The hydrography layer was developed by the USGS Water Resources Division in Portland, Oregon, and is described in the digital line coverage STR100.

Descriptive resource data are related to the hydrography data by a unique code assigned to each stream reach. The code is a modified version of the EPA river reach code or number (RRN), extended from the original 1:250,000 scale format to a version suitable to 1:100,000 scale. The RRN consists of three parts: USGS hydrologic unit code (HUC), reach segment code (SEG) and reach mile code (RMI). The format is:

HUC | SEG | RMI
17110004 0027 01.34

e.g. 17110004002701.34

The hydrography layer and related tabular files are organized by the USGS hydrologic unit (a list of hydrologic units by river basin is in Appendix L). The hydrologic unit code (HUC) comprises the first 8 digits of the river reach number or code (RRN). The segment (SEG) and river mile (RMI) portions of the river reach code (SEGRMI) provide the relating mechanism between the hydrography layer and the tabular attribute files which describe the natural resources.

Shorelines of double-banked streams, braided streams, lakes, and reservoirs are stored in the coverage called banks. Stream centerlines run through these features to complete the stream network.

**DATA STRUCTURE NAME:** STR100

**DATA STRUCTURE TYPE:** Arc/Info line coverage

| COL | ITEM NAME | WDTH | OPUT | TYP | N.DEC | DESCRIPTION |
|---|---|---|---|---|---|---|
| 1 | FNODE# | 4 | 5 | B | - | ---------- |
| 5 | TNODE# | 4 | 5 | B | - | |
| 9 | LPOLY# | 4 | 5 | B | - | |
| 13 | RPOLY# | 4 | 5 | B | - | Arc attributes |
| 17 | LENGTH | 4 | 12 | B | 3 | |
| 21 | STR100# | 4 | 5 | F | - | |
| 25 | STR100-ID | 4 | 5 | B | - | ---------- |
| 29 | STRTYPE | 3 | 3 | C | - | *Synthesis of the USGS MAJOR and MINOR codes |

*Codes used to describe general stream types were synthesized from the USGS stream classification codes (MAJOR and MINOR) used for Digital Line Graph Attribute Coding Standards.

| | | | |
|---|---|---|---|
| UN | = uncoded feature | AR | = artificial water transport |
| CH | = channel in water | GS | = glacier/snowfield |
| OW | = open water | PI | = pipeline |
| SH | = shoreline | STD | = dry stream |
| STE | = ephemeral stream | STI | = intermittent stream |
| STP | = perennial stream | WL | = wetland |
| XP | = excludes unlabeled polygons | | |

| COL | ITEM NAME | WDTH | OPUT | TYP | N.DEC | DESCRIPTION |
|---|---|---|---|---|---|---|
| 32 | MAJOR1 | 6 | 6 | I | - | ---------- |
| 38 | MINOR1 | 6 | 6 | I | - | Stream type codes from DLG |
| 44 | MINOR2 | 6 | 6 | I | - | |
| 50 | MINOR3 | 6 | 6 | I | - | ---------- |
| 56 | RRN | 17 | 17 | C | - | River reach number |
| 73 | LEVEL | 2 | 2 | I | - | Stream hierarchy (250K) |
| 75 | FLAGS | 5 | 5 | C | - | 250K stream typing system |
| 80 | STR-NAME | 30 | 30 | C | - | Stream names (incomplete) |
| 110 | STATE | 4 | 4 | C | - | Predominate state |

**DATA STRUCTURE:** STR100 (continued)

| COL | ITEM NAME | WDTH | OPUT | TYP | N.DEC | DESCRIPTION |
|---|---|---|---|---|---|---|
| 114 | STATE-2 | 4 | 4 | C | - | Secondary state |
| 118 | COUNTY | 15 | 15 | C | - | Predominate county |
| 133 | COUNTY-2 | 15 | 15 | C | - | Secondary county |
| 148 | QUAD100 | 26 | 26 | C | - | Predominate 100K quad name |
| 174 | QUAD100-2 | 26 | 26 | C | - | Secondary 100K quad name |
| 200 | QUAD75 | 25 | 25 | C | - | Predominate 24K quad name |
| 225 | QUAD75-2 | 25 | 25 | C | - | Secondary 24K quad name |
| 250 | CEN | 4 | 5 | B | - | Node ID of allocation center used to create steam linkage. |
| 254 | CUMLENGTH | 4 | 12 | F | 2 | Cumulative length in meters from the allocation center |
| 258 | SAVENEG | 1 | 1 | I | - | Flag on arcs blocked before allocation. Includes canals, aqueducts, and braids. |
| 259 | NONROUTE | 4 | 4 | F | 2 | Reaches assigned a negative allocation value. Indicates a non-linkage stream. |
| 263 | SINUOS | 5 | 5 | N | 2 | Sinuosity-ratio of stream length over straight line distance |
| 268 | PNTR# | 5 | 5 | I | - | Pointer used in the linkage system. Up and down stream |
| 273 | UHUC1 | 8 | 8 | I | - | First upstream HUC unit |
| 281 | UPNTR1 | 5 | 5 | I | - | First upstream reach (points to PNTR# of upstream reach) |
| 286 | UHUC2 | 8 | 8 | I | - | Second upstream HUC unit |

**DATA STRUCTURE:** STR100 (continued)

| COL | ITEM NAME | WDTH | OPUT | TYP | N.DEC | DESCRIPTION |
|---|---|---|---|---|---|---|
| 294 | UPNTR2 | 5 | 5 | I | - | Second upstream reach |
| 299 | UHUC3 | 8 | 8 | I | - | Third upstream HUC unit |
| 307 | UPNTR3 | 5 | 5 | I | - | Third upstream reach |
| 312 | UFLAG | 1 | 1 | I | - | Flag indicating more upstream reaches |
| 313 | DHUC | 8 | 8 | I | - | Downstream HUC unit |
| 321 | DPNTR | 5 | 5 | I | - | Downstream reach |
| | | | ** REDEFINED ITEMS ** | | | |
| 56 | HUC | 8 | 8 | I | - | USGS hydrologic unit code |
| 64 | SEG | 4 | 4 | I | - | Reach segment code |
| 68 | RMI | 5 | 5 | N | 2 | Reach mile |
| 64 | SEGRMI | 9 | 9 | N | 2 | Combined SEG and RMI to give a unique reach identifier |
| 58 | XRRN | 15 | 15 | N | 2 | Cross-basin relate code |

**Banks Hydrography**

The banks hydrography layer contains double-banked streams and rivers, the shorelines of lakes and reservoirs, and the boundaries of glaciers. The coverage was developed by the USGS Water Resources Division in Portland, Oregon, and is described in the digital polygon coverage BANKS.

**DATA STRUCTURE NAME:** BANKS

**DATA STRUCTURE TYPE:** Arc/Info polygon coverage

| COL | ITEM NAME | WDTH | OPUT | TYP | N.DEC | DESCRIPTION |
|---|---|---|---|---|---|---|
| 1 | AREA | 4 | 12 | F | 3 | ---------- |
| 5 | PERIMETER | 4 | 12 | F | 3 | Arc/Info attributes |
| 9 | BANKS# | 4 | 5 | B | - | |
| 13 | BANKS-ID | 4 | 5 | B | - | ---------- |
| 17 | MAJOR1 | 6 | 6 | I | - | ---------- |
| 23 | MINOR1 | 6 | 6 | I | - | Feature type from USGS |
| 29 | MINOR2 | 6 | 6 | I | - | DLG's |
| 35 | MINOR3 | 6 | 6 | I | - | ---------- |
| 41 | HUC | 8 | 8 | I | - | USGS hydrologic unit code |

**Anadromous Fish**

The anadromous fish data contained in the Washington Rivers Information System represents current knowledge in the field. Updates are normally a cooperative effort between WDFW and the Northwest Indian Fisheries Commission (NWIFC). Funding will be provided in part by the BPA, and the efforts to compile the data into a format usable for WARIS will be coordinated by WDFW.

Anadromous fish data are organized by the USGS hydrologic unit and are related to the STR100 hydrography layer by the identifier codes SEGRMI (within basin) XRRN (cross-basin). The files contain anadromous fish presence by reach, the upper extent of anadromous ranges, blockages to anadromous fish passage, passage facilities, and fish production facilities statewide. Data exist in two formats:

1. The Arc/Info point coverage ANADPTS containing anadromous fish upper extent locations, blockages, passage facilities, and production facilities. Each point includes descriptive attributes on species and feature presence.

2. The INFO files ANAD contain river reach codes with reach anadromous features, including species, blockages, production facilities, and passage facilities.

Refinements are planned for the INFO attribute file ANAD. These include: (1) determination of the proportion of anadromous use of the upper extent reaches, and (2) the determination of the reach mile distance of blockages, passage facilities, and production facilities.

**DATA STRUCTURE NAME:** ANAD

**DATA STRUCTURE TYPE:** INFO table

| COL | ITEM NAME | WDTH | OPUT | TYP | N.DEC | DESCRIPTION |
|---|---|---|---|---|---|---|
| 1 | RRN | 17 | 17 | C | - | River reach number |

The following items identify species presence by name. The species items are coded 1 if the reach is used by the species. Items with the suffix '-UP' are coded 1 if the reach is an upper extent of that species.

| COL | ITEM NAME | WDTH | OPUT | TYP | N.DEC | DESCRIPTION |
|---|---|---|---|---|---|---|
| 18 | COHO | 4 | 4 | N | 2 | Coho salmon |
| 22 | COHO-UP | 1 | 1 | I | - | |
| 23 | CHUM | 4 | 4 | N | 2 | Chum salmon |
| 27 | CHUM-UP | 1 | 1 | I | - | |
| 28 | CHSP | 4 | 4 | N | 2 | Spring chinook |
| 32 | CHSP-UP | 1 | 1 | I | - | |
| 33 | CHSU | 4 | 4 | N | 2 | Summer chinook |
| 37 | CHSU-UP | 1 | 1 | I | - | |
| 38 | CHFA | 4 | 4 | N | 2 | Fall chinook |
| 42 | CHFA-UP | 1 | 1 | I | - | |
| 43 | CHUK | 4 | 4 | N | 2 | Unknown chinook |
| 47 | CHUK-UP | 1 | 1 | I | - | |
| 48 | SOCK | 4 | 4 | N | 2 | Sockeye |
| 52 | SOCK-UP | 1 | 1 | I | - | |
| 53 | PINK | 4 | 4 | N | 2 | Pink |
| 57 | PINK-UP | 1 | 1 | I | - | |
| 58 | STSU | 4 | 4 | N | 2 | Summer steelhead |
| 62 | STSU-UP | 1 | 1 | I | - | |
| 63 | STWI | 4 | 4 | N | 2 | Winter steelhead |
| 67 | STWI-UP | 1 | 1 | I | - | |

**DATA STRUCTURE:** ANAD (continued)

| COL | ITEM NAME | WDTH | OPUT | TYP | N.DEC | DESCRIPTION |
|---|---|---|---|---|---|---|
| 68 | STJU | 4 | 4 | N | 2 | Juvenile steelhead |
| 72 | STJU-UP | 1 | 1 | I | - | |
| 73 | STUK | 4 | 4 | N | 2 | Unknown steelhead |
| 77 | STUK-UP | 1 | 1 | I | - | |
| 78 | ATSA | 4 | 4 | N | 2 | Atlantic salmon |
| 82 | ATSA-UP | 1 | 1 | I | - | |
| 83 | WHST | 4 | 4 | N | 2 | White sturgeon |
| 87 | WHST-UP | 1 | 1 | I | - | |
| 88 | GRST | 4 | 4 | N | 2 | Green sturgeon |
| 92 | GRST-UP | 1 | 1 | I | - | |
| 93 | SMET | 4 | 4 | N | 2 | Smelt |
| 97 | SMET-UP | 1 | 1 | I | - | |
| 98 | SHAD | 4 | 4 | N | 2 | Shad |
| 102 | SHAD-UP | 1 | 1 | I | - | |
| 103 | BLOCK | 4 | 4 | C | - | *Blockage type present |

*Blockage codes are as follows: first letter is either 'I' for impassable to all species or 'P' for passable to at least one. The next two letters are defined as:

| | | | | | |
|---|---|---|---|---|---|
| B | = beaver dam | H | = chute | S | = screens |
| SS | = soil slump | L | = logjams | D | = dam |
| VB | = velocity barrier | F | = falls | T | = culvert |
| GB | = gradient barrier | M | = marsh | U | = unknown |
| DT | = dam with trap and haul | O | = ford | W | = weirs |
| G | = flood gate | P | = pipe | C | = cascades |

| COL | ITEM NAME | WDTH | OPUT | TYP | N.DEC | DESCRIPTION |
|---|---|---|---|---|---|---|
| 107 | PRODUCT | 2 | 2 | C | - | *Production facility type |

*Production codes are as follows:

| | | | | | |
|---|---|---|---|---|---|
| SC | = spawning channel | SP | = spawning pads | HT | = hatchery |
| OW | = over-winter pond | RP | = rearing pond | EB | = egg box |
| CP | = conditioning pond | NP | = net pens | ET | = egg tube |

| COL | ITEM NAME | WDTH | OPUT | TYP | N.DEC | DESCRIPTION |
|---|---|---|---|---|---|---|
| 109 | PROD_ID | 3 | 3 | I | - | ID number relating to a file on production facilities |

**DATA STRUCTURE:** ANAD (continued)

| COL | ITEM NAME | WDTH | OPUT | TYP | N.DEC | DESCRIPTION |
|---|---|---|---|---|---|---|
| 112 | PASSAGE | 1 | 1 | C | - | Y/N flag indicates passage facility presence |
| 113 | OUTPLANT | 1 | 1 | C | - | Y/N flag indicates anadromous fish planted above an impassable blockage |
| 114 | REV_DATE | 8 | 8 | C | - | Revision date |
| 122 | REV_WHO | 40 | 40 | C | - | Person updating data |
| 162 | NUMSPP | 2 | 2 | I | - | Total number of species |
| 164 | ACCESS | 1 | 1 | I | - | Flag indicating reach is accessible to anadromous fish |
| 165 | HATWATSRC | 1 | 1 | I | - | Flag indicating a reach that supplies water to production facilities |
| 166 | POTACCESS | 1 | 1 | I | - | Flag indicating potential access to reaches through engineered facilities |
| 167 | PLANACCESS | 1 | 1 | I | - | Flag indicating reaches for planned access through enhancement or restoration |
| 168 | SPECIALMGMT | 1 | 1 | I | - | Flag for upstream reaches of spring chinook waters |
| 169 | HYDROCAT | 1 | 1 | I | - | State Hydropower Plan codes for reach classification<br>1 = protected area<br>2 = sensitive area<br>3 = data available but not class 1 or 2<br>4 = unknown<br>3 & 4 combined = hydropower opportunity area |

**DATA STRUCTURE:** ANAD (continued)

| COL | ITEM NAME | WDTH | OPUT | TYP | N.DEC | DESCRIPTION |
|---|---|---|---|---|---|---|
| | | | ** REDEFINED ITEMS ** | | | |
| 1 | HYDROUNIT | 8 | 8 | I | - | USGS hydrologic unit code |
| 9 | SEGRMI | 9 | 9 | N | 2 | Four-digit reach segment and river reach mile |
| 3 | XRRN | 15 | 15 | N | 2 | Cross-basin relate code |

**DATA STRUCTURE NAME:** ANADPTS

**DATA STRUCTURE TYPE:** Arc/Info point coverage

| COL | ITEM NAME | WDTH | OPUT | TYP | N.DEC | DESCRIPTION |
|---|---|---|---|---|---|---|
| 1 | AREA | 4 | 12 | F | 3 | ---------- |
| 5 | PERIMETER | 4 | 12 | F | 3 | Arc/Info attributes |
| 9 | ANADPTS# | 4 | 5 | B | - | |
| 13 | ANADPTS-ID | 4 | 5 | B | - | ---------- |
| 17 | IDNUM | 3 | 3 | I | - | Unique point ID number |

The following items have a value of 1 if the point is an upper extent reach of the particular species, otherwise the value is 0.

| COL | ITEM NAME | WDTH | OPUT | TYP | N.DEC | DESCRIPTION |
|---|---|---|---|---|---|---|
| 20 | COHO-UP | 1 | 1 | I | - | Upper extent coho salmon |
| 21 | CHUM-UP | 1 | 1 | I | - | " " chum salmon |
| 22 | CHSP-UP | 1 | 1 | I | - | " " spring chinook |
| 23 | CHSU-UP | 1 | 1 | I | - | " " summer chinook |
| 24 | CHFA-UP | 1 | 1 | I | - | " " fall chinook |
| 25 | CHJU-UP | 1 | 1 | I | - | " " juvenile chinook |
| 26 | CHUK-UP | 1 | 1 | I | - | " " unknown chinook |
| 27 | SOCK-UP | 1 | 1 | I | - | " " sockeye salmon |
| 28 | PINK-UP | 1 | 1 | I | - | " " pink salmon |
| 29 | STSU-UP | 1 | 1 | I | - | " " summer steelhead |
| 30 | STWI-UP | 1 | 1 | I | - | " " winter steelhead |
| 31 | STJU-UP | 1 | 1 | I | - | " " juvenile steelhead |
| 32 | STUK-UP | 1 | 1 | I | - | " " unknown steelhead |
| 33 | ATSA-UP | 1 | 1 | I | - | " " atlantic salmon |

**PHS STRUCTURE:** ANADPTS (continued)

| COL | ITEM NAME | WDTH | OPUT | TYP | N.DEC | DESCRIPTION |
|---|---|---|---|---|---|---|
| 34 | WHST-UP | 1 | 1 | I | - | Upper extent white sturgeon |
| 35 | GRST-UP | 1 | 1 | I | - | " " green sturgeon |
| 36 | SMET-UP | 1 | 1 | I | - | " " smelt |
| 37 | SHAD-UP | 1 | 1 | I | - | " " shad |
| 38 | NUMSPP | 2 | 2 | I | - | Number of species |
| 40 | BLOCK | 4 | 4 | C | - | Blockage (see above codes) |
| 44 | PRODUCT | 2 | 2 | C | - | Production (see above codes) |
| 46 | PROD_ID | 3 | 3 | I | - | Relates to PRODUCTION below |
| 49 | PASSAGE | 1 | 1 | C | - | Y/N passage flag |
| 50 | OUTPLANT | 1 | 1 | C | - | Y/N flag for planted PASSAGE |
| 51 | COMMENTS | 50 | 50 | C | - | Comments |
| 101 | REV_DATE | 8 | 8 | C | - | Revision date |
| 109 | REV_WHO | 40 | 40 | C | - | Revision source |

The tabular file PRODUCTION contains data on production facilities. The item PROD_ID provides the relation link between the ANADPTS coverage and the ANAD INFO file described above and this PRODUCTION description file.

**DATA STRUCTURE NAME:** PRODUCTION

**DATA STRUCTURE TYPE:** INFO table (relates to ANADPTS)

| COL | ITEM NAME | WDTH | OPUT | TYP | N.DEC | DESCRIPTION |
|---|---|---|---|---|---|---|
| 1 | PROD-ID | 3 | 3 | I | - | Relate item to ANADPTS |
| 4 | FACLNAME | 40 | 40 | C | - | Facility name |
| 46 | LOCATION | 60 | 60 | C | - | Location by water name |
| 106 | BASINAME | 15 | 15 | C | - | Basin name |

**DATA STRUCTURE:** PRODUCTION (continued)

| COL | ITEM NAME | WDTH | OPUT | TYP | N.DEC | DESCRIPTION |
|---|---|---|---|---|---|---|
| 121 | WRIASTRNO | 10 | 10 | C | - | WRIA stream number |
| 131 | OPERATOR | 15 | 15 | C | - | Facility operator(s) |
| 161 | WATERSRC | 60 | 60 | C | - | Water source |
| 221 | SPECIES | 20 | 20 | C | - | Species reared (anadromous and resident fish codes) |
| 251 | COMMENTS | 50 | 50 | C | - | Comments |
| 259 | HYDROUNIT | 8 | 8 | I | - | USGS hydrologic unit code |

Anadromous fish data limitations are as follows:

1. Not all potential access areas (POTACCESS) have been designated in the database. However, the more important ones have.

2. Not all production facilities have a hatchery water source (HATWATSRC) identified.

3. None of the reaches have been assigned with a hydropower category of 3, indicating that enough information exists to conclude a resource conflict exists. This code would normally be assigned by traveling upstream of the impassable barriers and coding the reaches with a HYDROCAT = 3. This has not been completed due to the unpredictable linkage system in the STR100 1:100,000 scale hydrography layer. Corrections to STR100 are currently under way and the reaches will be reclassified when the project is completed.

4. Upper extent reaches are labeled as having fish present even though only the lower portion may be used. This may be modified in the future, possibly using dynamic segmentation to define migration routes for anadromous fish. At this time the point coverage describing upper extent can be used.

**Resident Fish**

The resident fish database design was based on processes and data types that were originally used in the Pacific Northwest Rivers Assessment Study. In the interest of improving objectivity, item types were reviewed and given more specific parameter definitions where necessary. The main objective is to minimize the number of items for which data were collected to only those most pertinent to river and stream reach quality assessment and critical resource identification.

Data were collected on resident fish species present in a reach and for population origins, planted or naturally reproducing. Relative values were calculated for each reach based on the recreation and/or management value of fish species present. A flag was added to indicate species of concern presence. The relative abundance of game fish present was evaluated. Data were also entered for habitat characteristics important to fish production (gradient, substrate, in-stream cover, riparian cover, and water quality limiting factors). For recreational value assessment the relative amount of angler use on a reach was evaluated.

An INFO file table describes resident fish populations and resources for each basin. Files for resident fish are placed in each basin and are related to the STR100 hydrography coverage using the SEGRMI item. Data were collected via an interview process with WDFW fish and habitat biologists. Consistency during the process was critical and maintained throughout. The biologists relied upon professional knowledge based on field surveys, research projects, and experience. They were encouraged to use reports and survey data when required or involved other professionals in the field who had knowledge of the area.

Data item values are in two formats: true/false flags and three descriptive categories. Each descriptive category was assigned a relative numeric value of high, medium, or low (1, 2, 3) based on that characteristic's importance for producing resident fish (e.g. GRADIENT categories were: 1 = greater than 4%, 2 = 1% through 4%, 3 = less than 1%). The assigned values for each item are not species-specific but are based on general trout habitat requirements taken from studies modeling stream habitat and trout production.

Due to structure problems in listing all 79 known resident fish species in Washington State, accessibility for mapping and analysis is rather difficult. To remedy this problem the files will be updated and split into two sub-files, one for species and a second containing critical values and habitat information.

**DATA STRUCTURE NAME:** RESFISH

**DATA STRUCTURE TYPE:** INFO table

| COL | ITEM NAME | WDTH | OPUT | TYP | N.DEC | DESCRIPTION |
|---|---|---|---|---|---|---|
| 1 | RRN | 17 | 17 | C | - | River reach number |
| 18 | REV_WHO | 29 | 29 | C | - | Data source or revisor |
| 47 | REV_DATE | 8 | 8 | C | - | Date of data collection |
| 55 | SP1 | 3 | 3 | C | - | ---------- |
| 58 | SP2 | 3 | 3 | C | - | All known species present in |
| 61 | SP3 | 3 | 3 | C | - | the reach--uses WDFW fish |
| 64 | SP4 | 3 | 3 | C | - | species codes. |

**DATA STRUCTURE:** RESFISH (continued)

| COL | ITEM NAME | WDTH | OPUT | TYP | N.DEC | DESCRIPTION |
|---|---|---|---|---|---|---|
| 67 | SP5 | 3 | 3 | C | - | |
| 70 | SP6 | 3 | 3 | C | - | All known species present in |
| 73 | SP7 | 3 | 3 | C | - | the reach--uses WDFW fish |
| 76 | SP8 | 3 | 3 | C | - | species codes. |
| 79 | SP9 | 3 | 3 | C | - | (see Appendix K) |
| 82 | SP10 | 3 | 3 | C | - | ---------- |
| 85 | GRADNT | 1 | 1 | I | - | Percent gradient for a reach:<br>1 = > 4%, 2 = 1-4%, 3 = < 1% |
| 86 | SUBSTR | 1 | 1 | I | - | The average stream channel substrate. Values are based more on rearing habitat than on spawning habitat.<br>1 = boulders/rubble<br>2 = rubble/gravel<br>3 = gravel/fines |
| 87 | INCOV | 1 | 1 | I | - | In-stream cover: organic debris, undercut banks, pools caused by rocks, substrate rubble, turbulence, deep pools, brush piles, and aquatic vegetation. Also describes the percent of wetted area containing material that offers protection and concealment from swift currents, food, and shade. The percent of wetted area containing cover is averaged for the reach.<br>1 = > 50% of wetted area<br>2 = 25 - 50% of wetted area<br>3 = < 25% of wetted area |

**DATA STRUCTURE:** RESFISH (continued)

| COL | ITEM NAME | WDTH | OPUT | TYP | N.DEC | DESCRIPTION |
|---|---|---|---|---|---|---|
| 88 | RIPCOV | 1 | 1 | I | - | Description of organic cover and inorganic material on or above the bank that offers shading, protection from soil erosion, and escape cover or resting security for fish. Riparian cover is expressed as a percent of bank surface that is covered by vegetation or other cover materials and the degree of erosion control.<br>1 = > 50% of stream bank with little or no erosion<br>2 = 25 - 50% of stream bank and limited active erosion<br>3 = < 25% of stream bank and active erosion present |
| 89 | H2OQUAL | 1 | 1 | I | - | Assessment of water quality limiting factors: pollution, high temperatures, turbidity, dissolved gases, and low flows due to withdrawals or natural causes.<br>1 = no known limiting factors<br>2 = factors not annual in the occurrence or only mildly limiting<br>3 = factors present and are annually impacting fish populations |
| 90 | HABIMPT | 1 | 1 | C | - | A flag based on protection of upland and riparian areas to prevent major habitat impacts to downstream fishery resources. Upland or riparian areas received a T (true) or an F (false). |

**DATA STRUCTURE:** RESFISH (continued)

| COL | ITEM NAME | WDTH | OPUT | TYP | N.DEC | DESCRIPTION |
|---|---|---|---|---|---|---|
| 90 | HABIMPT (cont.) | 1 | 1 | C | - | T = > 1,500 feet elevation, AND slope 30 - 50%, AND adequate vegetation to prevent erosion<br>F = all others |
| 91 | GFABUND | 1 | 1 | I | - | An assessment of game fish abundance in a reach relative to other reaches within a biologist's jurisdiction.<br>1 = high abundance<br>2 = intermediate abundance<br>3 = low abundance |
| 92 | ANGLUSE | 1 | 1 | I | - | A assessment of angler use of game fish in a reach relative to other reaches within a biologist's jurisdiction.<br>1 = high use<br>2 = intermediate use<br>3 = low use |
| 93 | GFVAL | 1 | 1 | I | - | Relative importance of game fish present in a reach.<br>1 = high: all native<br>2 = medium: introduced fish with active management<br>3 = low: introduced fish with no active management or game fish present |
| 94 | NGVAL | 1 | 1 | I | - | Relative importance of non-game fish present in a reach.<br>1 = high: native non-game fish of threatened, endangered, sensitive, or monitored status listed by Federal, State, or WDFW<br>2 = medium: all other native non-game fish |

**DATA STRUCTURE:** RESFISH (continued)

| COL | ITEM NAME | WDTH | OPUT | TYP | N.DEC | DESCRIPTION |
|---|---|---|---|---|---|---|
| 94 | NGVAL (cont.) | 1 | 1 | I | - | 3 = low: introduced non-game fish |
| 95 | SPAWN | 1 | 1 | C | - | A flag to identify key reaches of known spawning areas.<br>T = key reaches with spawning habitat critical to fish population perpetuation<br>F = reaches where spawning habitat is absent |
| 96 | SPPCON | 1 | 1 | C | - | Presence of WDFW classified species of concern<br>T = Dolly Varden/Bull Trout, Olympic Mudminnow, Pygmy Whitefish, and Searun Cutthroat<br>F = the above are not present |
| 97 | ORIGIN | 1 | 1 | I | - | Population origin<br>1 = native population<br>2 = wild population with some historical stocking<br>3 = planted population |
| 98 | COMMENTS | 50 | 50 | C | - | Comments |
| 148 | SUMRANK | 2 | 2 | I | - | Sum of descriptive items |
| 150 | HABRANK | 2 | 2 | I | - | Sum of habitat parameters |
| 152 | SUMVAL | 1 | 1 | I | - | Grouped SUMRANK values<br>1 = outstanding<br>2 = substantial<br>3 = moderate<br>4 = low<br>5 = insufficient data |

**DATA STRUCTURE:** RESFISH (continued)

| COL | ITEM NAME | WDTH | OPUT | TYP | N.DEC | DESCRIPTION |
|---|---|---|---|---|---|---|
| 153 | CRITICAL | 1 | 1 | C | - | Flag for critical spawning or species of concern presence<br>T = present<br>F = not present |
| 154 | HYDROCAT | 1 | 1 | I | - | Hydropower classification<br>1 = protected area<br>2 = sensitive area<br>3 = data available but not 1 or 2<br>4 = unknown<br>3 & 4 = hydropower opportunity |
| 156 | DB.STATUS | 1 | 1 | I | - | Dolly Varden/Bull Trout<br>1 = historically present<br>2 = present, unknown status<br>3 = present, high risk<br>4 = present, moderate risk<br>5 = present, low risk<br>6 = present, no immediate risk |
| | | | ** REDEFINED ITEMS ** | | | |
| 1 | HYDROUNIT | 8 | 8 | I | - | USGS hydrologic unit code |
| 9 | SEGRMI | 9 | 9 | N | 2 | Four-digit reach segment and river reach mile |
| 3 | XRRN | 15 | 15 | N | 2 | Cross-basin relate code |

The Washington Department of Fish and Wildlife produced two summary fields to provide managers with a means for determining management priorities: (1) a SUMMARY value that describes the overall quality of a reach for resident fish by assigning each reach a relative rank, and (2) a CRITICAL resources flag that identifies a reach as having either a species of concern or has critical spawning habitat.

Several different procedures for determining a summary value were explored and the options were reviewed by a panel of eight fish biologists. The one that preserved the most information while injecting the least bias was chosen. That summary process is as follows: Sum the values of each data item (those assigned a 1, 2, or 3 -- high, intermediate, or low). For example:

> **SUMMARY RANK** = GRADIENT + SUBSTRATE + INSTREAM COVER + RIPARIAN COVER + WATER QUALITY + ORIGIN + GAME FISH VALUE + NONGAME FISH VALUE + ANGLER USE + GAME FISH ABUNDANCE

The possible range for SUMMARY RANK are 10 - 30. This value was calculated for reaches which data were complete. Ranks for all basins were pooled and a frequency distribution of SUMMARY RANK versus TOTAL MILES of river and stream lengths were examined to group the data into four classes:

| Summary Value | Definition | Summary Rank Range |
|---|---|---|
| 0 | No Data | |
| 1 | Excellent Value | 10 - 15 |
| 2 | Substantial Value | 16 - 20 |
| 3 | Moderate Value | 21 - 25 |
| 4 | Low Value | 26 - 30 |
| 5 | Insufficient Data | |

Applications can use the SUMMARY value to identify relative quality of river/ stream reaches for resident fish and use the CRITICAL RESOURCES flag to identify reaches that can not withstand alterations without jeopardizing rare or critical resources.

The only noteworthy limitation for these data is that a high proportion (53%) of the reaches are unknown, most of which are small tributaries.

### Priority Habitats and Species Fish

The priority habitats and species files (PHSFISH) have recently been added to the WARIS database. They consist of Washington State priority habitat fish species presence. These data include both anadromous and resident fish.

**DATA STRUCTURE NAME:** PHSFISH

**DATA STRUCTURE TYPE:** INFO table

Species presence is defined if the reach is coded with a T; a blank space in the field indicates absence. The redefined item PHSFLAG is a composite of PHS fish presence by reach. A select on this item will pull all streams containing one or more species of PHS fish. The XRRN item provides the capability of using cross-basin selects.

**DATA STRUCTURE:** PHSFISH

| COL | ITEM NAME | WDTH | OPUT | TYP | N.DEC | DESCRIPTION |
|---|---|---|---|---|---|---|
| 1 | RRN | 17 | 17 | C | - | River reach number |
| 18 | DB | 1 | 1 | C | - | Dolly Varden/Bull Trout |
| 19 | CCT | 1 | 1 | C | - | Coastal resident cutthroat |
| 20 | KOK | 1 | 1 | C | - | Kokanee salmon |
| 21 | RB | 1 | 1 | C | - | Rainbow trout |
| 22 | SCT | 1 | 1 | C | - | Searun cutthroat |
| 23 | SS | 1 | 1 | C | - | Steelhead, summer |
| 24 | SW | 1 | 1 | C | - | Steelhead, winter |
| 25 | SH | 1 | 1 | C | - | Steelhead, unknown |
| 26 | WCT | 1 | 1 | C | - | Westslope cutthroat |
| 27 | CC | 1 | 1 | C | - | Channel catfish |
| 28 | LMB | 1 | 1 | C | - | Largemouth bass |
| 29 | SMB | 1 | 1 | C | - | Smallmouth bass |
| 30 | WAL | 1 | 1 | C | - | Walleye |
| 31 | MNS | 1 | 1 | C | - | Mountain sucker |
| 32 | OMM | 1 | 1 | C | - | Olympic mudminnow |
| 33 | PGW | 1 | 1 | C | - | Pigmy whitefish |
| 34 | SAN | 1 | 1 | C | - | Sandroller |
| | | | ** REDEFINED ITEMS ** | | | |
| 1 | HYDROUNIT | 8 | 8 | I | - | USGS hydrologic unit code |
| 9 | SEGRMI | 9 | 9 | N | 2 | Combined reach segment and river reach mile |

**DATA STRUCTURE:** PHSFISH (continued)

| COL | ITEM NAME | WDTH | OPUT | TYP | N.DEC | DESCRIPTION |
|---|---|---|---|---|---|---|
| | | | ** REDEFINED ITEMS ** | | | |
| 18 | PHSFLAG | 17 | 17 | C | - | Composite presence flag |
| 3 | XRRN | 15 | 15 | N | 2 | Cross-basin relate code |

**Wildlife**

The wildlife information in WARIS is a combination of existing databases at Washington Department of Fish and Wildlife. They include the following:

1. Wildlife Heritage (HRTG) Database - point occurrences of non-game species, focusing on rare, threatened, and endangered species. For more information contact Tom Owens at (360) 902-2489.

2. Spotted Owl Database - spotted owl occurrences and center of activity data. For more information contact Ann Potter at (360) 902-2496.

3. Habitat Conservation Areas (HCA) - US Forest Service (USFS) designated HCA. For more information contact the US Forest Service, Portland, Oregon.

4. Priority Habitats and Species (PHS) Database - mapped WDFW priority habitat and species areas. For information contact Terry Johnson (360) 902-2494.

The WILDLIFE database exists in two files, one is the main file containing one record per reach, and the second is a normalized file SPECIES containing all species which occur along a reach.

**DATA STRUCTURE NAME:** WILDLIFE

**DATA STRUCTURE TYPE:** INFO table

| COL | ITEM NAME | WDTH | OPUT | TYP | N.DEC | DESCRIPTION |
|---|---|---|---|---|---|---|
| 1 | RRN | 17 | 17 | C | - | River reach number |
| 18 | HCAFLAG | 1 | 1 | I | - | Indicates reach overlap of USFS designated spotted owl habitat conservation area (HCA) |

**DATA STRUCTURE:** WILDLIFE (continued)

| COL | ITEM NAME | WDTH | OPUT | TYP | N.DEC | DESCRIPTION |
|---|---|---|---|---|---|---|
| 19 | FOREST | 3 | 3 | C | - | National Forest on which the HCA is located<br>MBS = Mt. Baker Snoqualmie<br>OLY = Olympic<br>GIP = Gifford Pinchot<br>WEN = Wenatchee<br>OKA = Okanogan |
| 22 | HYDROCAT | 1 | 1 | I | - | Hydropower classification<br>1 = protected area<br>2 = sensitive area<br>3 = data available but not 1 or 2<br>4 = unknown<br>3 & 4 = hydropower opportunity |
| 23 | TEFLAG | 1 | 1 | I | - | Flag (0/1) indicating presence of state or federal threatened or endangered species |
| 24 | PHSSPPFLAG | 1 | 1 | I | - | Flag (0/1) indicating presence of a priority species within a specified buffer distance from a reach (See Appendix J) |
| 25 | PHSPOLY | 1 | 1 | I | - | Flag (0/1) indicating the overlap with a priority habitat or species polygon |
| | | | ** REDEFINED ITEMS ** | | | |
| 1 | HYDROUNIT | 8 | 8 | I | - | USGS hydrologic unit code |
| 9 | SEGRMI | 9 | 9 | N | 2 | Combined reach segment and river reach mile |
| 3 | XRRN | 15 | 15 | N | 2 | Cross-basin relate code |

**DATA STRUCTURE NAME:** SPECIES

**DATA STRUCTURE TYPE:** INFO table

List of species and associated attributes by reach. More than one species can be listed per reach. The file has a one to many relationship with the STR100 river reach files.

| COL | ITEM NAME | WDTH | OPUT | TYP | N.DEC | DESCRIPTION |
|---|---|---|---|---|---|---|
| 1 | SEGRMI | 9 | 9 | N | 2 | Extended EPA segment and river mile code |
| 10 | SPPCODE | 6 | 6 | C | - | Code indicating presence of a species within a specified buffer distance of a reach (See Appendix J) |
| 16 | INDEX | 6 | 6 | C | - | Nature Conservancy listed species code |
| 22 | OCCUR | 3 | 3 | I | - | Individual record number |
| 25 | SEQNO | 2 | 2 | I | - | Individual nest number within a multiple nest territory |
| 27 | DATAPT | 3 | 3 | I | - | Labels data point on a quad in Wildlife Heritage Database |
| 30 | CLASS | 2 | 2 | C | - | SA = special animal<br>ZA = destroyed site |
| 32 | STASTAT | 2 | 2 | C | - | State protection status<br>SE = state endangered<br>ST = state threatened<br>SS = state sensitive<br>SC = state candidate<br>SM = state monitor |
| 34 | FEDSTAT | 2 | 2 | C | - | Federal protection status<br>FE = federal endangered<br>FT = federal threatened<br>FS = federal sensitive<br>FC = federal candidate |

**DATA STRUCTURE:** SPECIES (continued)

| COL | ITEM NAME | WDTH | OPUT | TYP | N.DEC | DESCRIPTION |
|---|---|---|---|---|---|---|
| 36 | PHCLASS | 1 | 1 | C | - | Phylogenitic class<br>A = invertebrate<br>B = fish<br>C = herptile<br>D = bird<br>E = mammal |
| 37 | PRIORT | 2 | 2 | I | - | Synthesis of protected status<br>1 = state endangered<br>2 = proposed state endangered<br>3 = state threatened<br>4 = proposed state threatened<br>5 = state sensitive<br>6 = proposed state sensitive<br>7 = state monitor<br>8 = proposed state monitor |
| 39 | COORD | 1 | 1 | I | - | Coordinate precision<br>C = less than or equal to 1/4 mile and biologist confirmed<br>U = less than or equal to 1/4 mi. but unconfirmed<br>N = location known within one mile<br>G = location known to general area |
| 40 | CRIT | 5 | 5 | C | - | Data entry criteria<br>B = breeding site<br>BOX = artificial nest site<br>C = cross-foster site (peregrines only)<br>CR = communal roost<br>E = eyrie<br>H = hack site (peregrines only)<br>IO = individual occurrence |

**DATA STRUCTURE:** SPECIES (continued)

| COL | ITEM NAME | WDTH | OPUT | TYP | N.DEC | DESCRIPTION |
|---|---|---|---|---|---|---|
| 40 | CRIT (cont.) | 5 | 5 | C | - | LEK = prairie grouse lex<br>R = regular large concentration<br>RSC = regular small concentration |
| 45 | YEAR | 4 | 4 | I | - | Year observation entered into Wildlife Heritage Database |
| 49 | TEBUFF | 1 | 1 | I | - | Flag (0/1) indicating a known T & E species site occurrence within 1000 feet |
| 50 | REFNO | 4 | 4 | I | - | Relate item to the Spotted Owl Database--one number per entry |
| 54 | SITENO | 3 | 3 | I | - | Relate item to the Spotted Owl Database--one number per entry |
| 57 | PHSSPP | 1 | 1 | I | - | Flag (0/1) indicating a known priority species occurrence within a specified buffer distance (See Appendix J) |
| 58 | HYDROCAT | 1 | 1 | I | - | Hydropower classification<br>1 = protected area<br>2 = sensitive area<br>3 = data available but not 1 or 2<br>4 = unknown<br>3 & 4 = hydropower opportunity |

Priority Habitats and Species data and species listings are only available for commercial and private forest land at this time.

**Natural Heritage Features**

The natural features data in WARIS include rare plant and plant community information housed in the Natural Heritage Program of the Washington Department of Natural Resources. These data are point occurrences only and are called element occurrences. The point data were converted to an Arc/Info coverage and spatially related to the 1:100,000 scale hydrography layer to tag reaches with element occurrences present within specified distances from stream and river reaches.

Element occurrences were assigned to river reaches using two buffer distances. If the data point represented an individual occurance of a rare plant, those points were buffered with a 1000-foot circle and any reach intersecting that circle was assigned that element occurance. If the point represented a polygon feature or a plant community, the point was buffered with a 2640-foot radius circle and intersected with the river reaches.

**DATA STRUCTURE NAME:** NATFEAT

**DATA STRUCTURE TYPE:** INFO table

| COL | ITEM NAME | WDTH | OPUT | TYP | N.DEC | DESCRIPTION |
|---|---|---|---|---|---|---|
| 1 | RRN | 17 | 17 | C | - | River reach number |
| 18 | IDXCODE | 6 | 6 | C | - | Element name abbreviation. |
| 24 | OCCUR | 3 | 3 | I | - | Element occurrence number. Both items together provide a relate key to Washington Natural Heritage Database managed by the Department of Natural Resources. |
| 27 | CLASS | 2 | 2 | I | - | Feature type<br>SP = special plant<br>PC = plant community<br>NC = natural community or wetland |
| 29 | DATAPT | 3 | 3 | I | - | Unique element number by 7.5-minute quad map. |
| 32 | TRS | 20 | 20 | I | - | Township, range, section, and sub-section of an occurrence |

**DATA STRUCTURE:** NATFEAT (continued)

| COL | ITEM NAME | WDTH | OPUT | TYP | N.DEC | DESCRIPTION |
|---|---|---|---|---|---|---|
| 52 | STASTAT | 2 | 2 | C | - | State status<br>SE = state endangered<br>ST = state threatened<br>SS = state sensitive |
| 54 | FEDSTAT | 2 | 2 | C | - | Federal status<br>FE = federal endangered<br>FT = federal threatened<br>FS = federal sensitive<br>FC = federal candidate<br>FX = no federal status |
| 56 | PROTECT | 1 | 1 | C | - | The Nature Conservancy protection status with regard to land ownership and management<br>1 = preserved - a site legally protected (WA State, only federal wilderness areas)<br>2 = protected - site that is administrative designated, classified, registered,or otherwise recognized as a natural area<br>3 = unprotected |
| 57 | PRIORT | 1 | 1 | I | - | Synthesis of federal and state status (see above codes)<br>1 = SE & FC; 2 = SE & FX<br>3 = ST & FC; 4 = ST & FX<br>5 = SS & FC; 6 = SS & FX |
| 58 | SEQNO | 1 | 1 | I | - | Unique number for duplicate elements |

**DATA STRUCTURE:** NATFEAT (continued)

| COL | ITEM NAME | WDTH | OPUT | TYP | N.DEC | DESCRIPTION |
|---|---|---|---|---|---|---|
| 59 | COORD | 1 | 1 | C | - | Confirmation or coordinate precision<br>C = confirmed - known within a 1/4 mile radius and is confirmed by the Natural Heritage Program<br>U = unconfirmed - known within a 1/4 mile radius but has not been confirmed<br>N = non-specific - known within a one mile radius, but was derived from a secondary source |
| 60 | OWNCODE | 9 | 9 | C | - | Land ownership |
| 69 | YEAR | 4 | 4 | I | - | Year of observation |
| 73 | EONAME | 54 | 54 | C | - | Element occurrence name |
| 127 | HYDR | | | I | - | Hydropower protection designation in WA State Hydropower Development and Resource Protection Plan |
| 128 | BUFFDIST | 5 | 5 | I | - | Distance from a reach within which the element occurrence exists.<br>1000 feet (305 meters) - point occurrence data<br>2640 feet (805 meters) - polygon |
| | | | ** REDEFINED ITEMS ** | | | |
| 1 | HYDROUNIT | 8 | 8 | I | - | USGS hydrologic unit code |
| 9 | SEGRMI | 9 | 9 | N | 2 | Combined reach segment and river reach mile |

**DATA STRUCTURE:** NATFEAT (continued)

All data for natural features exist as point locations in the Washington Natural Heritage Database. Therefore, the actual boundaries of the Natural Area Preserves, Natural Conservation Areas, and Research Natural Areas were not used. Because of this, a point location was buffered to 2640 feet to approximate an area polygon. Additionally, the point data for these areas are not current. Also some Natural Heritage features (plant communities and wetlands) exist on the ground as polygon features. Again, the areas were approximated with a 2640-foot buffer.

## NATIONAL WETLANDS INVENTORY DATABASE

**Data Manager:** Washington Department of Ecology

### General Description

The National Wetlands Inventory (NWI) Database is an inventory system developed in 1974 by US Fish and Wildlife Service. Mapped at a scale of 1:24,000 or 1:62,000, NWI identifies wetlands and deep water habitats as either polygons or linear features. Attached to the mapped wetlands are descriptive codes based on the Cowardin classification system (Cowardin et al., 1979). Under the Cowardin system, wetlands are classified within a hierarchial organization according to plants, soils, and frequency of flooding. The NWI data is managed by the Washington Department of Ecology.

### Resolution and Limitations

NWI data is collected through stereoscopic analysis of high altitude color infrared aerial photographs. Because the methodology and scope of work impose limitations on the accuracy of the data, there is an inherent margin of error. As there has been no attempt in the design of the inventory system to delineate wetland boundaries, the maps should not be used for regulatory purposes. They are useful as an initial means of identifying the general location and extent of wetlands within a region, and when used in conjunction with hydric soils maps and aerial surveys, as a starting point for developing more detailed wetland inventories.

### Data Organization and Structure

The following are attribute items belonging to the National Wetlands Inventory database.

**DATA STRUCTURE NAME:** NWI quadrangle coverge

N<quadrangle code>

**DATA STRUCTURE TYPE:** Arc/Info polygon coverage

| COL | ITEM NAME | WDTH | OPUT | TYP | N.DEC | DESCRIPTION |
|---|---|---|---|---|---|---|
| 1 | AREA | 4 | 12 | F | 3 | Area of the polygon in square feet. |
| 5 | PERIMETER | 4 | 12 | F | 3 | Perimeter of the polygon in feet. |

**DATA STRUCTURE:** NWI quadrangle coverage (continued)

| COL | ITEM NAME | WDTH | OPUT | TYP | N.DEC | DESCRIPTION |
|---|---|---|---|---|---|---|
| 9 | NWI# | 4 | 5 | B | - | Internal identifier |
| 13 | NWI-ID | 4 | 5 | B | - | User Identifier |
| 17 | FWS.CODE | 16 | 16 | C | - | NWI code, concatenation of ecological system, subsystem, class, subclass, water regime, and other modifier codes. |

The NWI codes found in the attribute table of the NWI database are a concatenation of coding for the ecological system, subsystem, class, subclass, and modifying terms for water regime, chemistry, and soil. For example, in the FWS.CODE, a marine, subtidal, open water body would be coded M1OW, while a marshy area of persistent, emergent vegetation would be coded PEMP. Marine, Riverine, Lacustrine, and Estuarine ecological systems have subsystems, while Palustrine does not.

**M = MARINE** (ecological system)
- 1 = subtidal (ecological subsystem)
  - RB = rock bottom (class)
    - 1 = bedrock (subclass)
    - 2 = boulder
  - UB = unconsolidated bottom
    - 1 = cobble/gravel
    - 2 = sand
    - 3 = mud
    - 4 = organic
  - AB = aquatic bed
    - 1 = submergent algal
    - 2 = submergent vascular
    - 6 = unknown submergent
  - RF = reef
    - 1 = coral
    - 2 = worm
  - OW = open water
- 2 = intertidal
  - AB = aquatic bed
    - 1 = submergent algal
    - 2 = submergent vascular
    - 6 = unknown submergent

**DATA STRUCTURE:** NWI quadrangle coverage (continued)

RF = reef
- 1 = coral
- 2 = worm

FL = flat
- 1 = cobble/gravel
- 2 = sand
- 3 = mud
- 6 = vegetated non-pioneer

RS = rocky shore
- 1 = bedrock
- 2 = boulder
- 6 = vegetated non-pioneer

BB = beach bar
- 1 = cobble/gravel
- 2 = sand

**P = PALUSTRINE** (ecological system)

RB = rock bottom (class)
- 1 = bedrock (subclass)
- 2 = boulder

UB = unconsolidated bottom
- 1 = cobble/gravel
- 2 = sand
- 3 = mud
- 4 = organic

AB = aquatic bed
- 1 = submergent algal
- 2 = submergent vascular
- 3 = submergent moss
- 4 = floating leaved
- 5 = floating
- 6 = unknown submergent
- 7 = unknown surface

FL = flat
- 1 = cobble/gravel
- 2 = sand
- 3 = mud
- 4 = organic
- 5 = vegetated pioneer
- 6 = vegetated non-pioneer

ML = moss/lichen
- 1 = moss
- 2 = lichen

**DATA STRUCTURE:** NWI quadrangle coverage (continued)

EM = emergent
- 1 = persistent
- 2 = non-persistent
- 3 = narrow-leaved non-persistent
- 4 = broad-leaved non-persistent
- 5 = narrow-leaved persistent
- 6 = broad-leaved persistent

SS = scrub/shrub
- 1 = broad-leaved deciduous
- 2 = needle-leaved deciduous
- 3 = broad-leaved evergreen
- 4 = needle-leaved evergreen
- 5 = dead
- 6 = deciduous
- 7 = evergreen

FO = forested
- 1 = broad-leaved deciduous
- 2 = needle-leaved deciduous
- 3 = broad-leaved evergreen
- 4 = needle-leaved evergreen
- 5 = dead
- 6 = deciduous
- 7 = evergreen

OW = open water

**R = RIVERINE** (ecological system)
- 1 = tidal (subsystem)
- 2 = lower perennial
- 3 = upper perennial
- 4 = intermittent
- 5 = unknown perennial

(EMERGENTS found only in RIVERINE TIDAL and RIVERINE LOWER PERENNIAL subsystems, all other classes found in all RIVERINE subsystems)

EM = emergent (class)
- 2 = non-persistent (subclass)
- 3 = narrow-leaved non-persistent
- 4 = broad-leaved non-persistent

RB = rock bottom
- 1 = bedrock
- 2 = boulder

**DATA STRUCTURE:** NWI quadrangle coverage (continued)

UB = unconsolidated bottom
1 = cobble/gravel
2 = sand
3 = mud
4 = organic
AB = aquatic bed
1 = submergent algal
2 = submergent vascular
3 = submergent moss
4 = floating leaved
5 = floating
6 = unknown submergent
7 = unknown surface
FL = flat
1 = cobble/gravel
2 = sand
3 = mud
4 = organic
5 = vegetated pioneer
6 = vegetated non-pioneer
SB = stream bed
1 = cobble/gravel
2 = sand
3 = mud
4 = organic
RS = rocky shore
1 = bedrock
2 = boulder
BB = beach/bar
1 = cobble/gravel
2 = sand
OW = open water

L **= LACUSTRINE** (ecological system)
1 = limnetic (subsystem)
RB = rock bottom (class)
1 = bedrock (subclass)
2 = boulder
UB = unconsolidated bottom
1 = cobble/gravel
2 = sand
3 = mud
4 = organic

**DATA STRUCTURE:** NWI quadrangle coverage (continued)

AB = aquatic bed
1 = submergent algal
2 = submergent vascular
3 = submergent moss
4 = floating leaved
5 = floating
6 = unknown submergent
7 = unknown floating
OW = open water
2 = littoral
RB = rock bottom
1 = bedrock
2 = boulder
UB = unconsolidated bottom
1 = cobble/gravel
2 = sand
3 = mud
4 = organic
AB = aquatic bed
1 = submergent algal
2 = submergent vascular
3 = submergent moss
4 = floating leaved
5 = floating
6 = unknown submergent
7 = unknown surface
FL = flat
1 = cobble/gravel
2 = sand
3 = mud
4 = organic
5 = vegetated pioneer
6 = vegetated non-pioneer
RS = rocky shore
1 = bedrock
2 = boulder
BB = beach/bar
1 = cobble/gravel
2 = sand
EM = emergent
2 = non-persistent
3 = narrow-leaved non-persistent
4 = broad-leaved non-persistent

**DATA STRUCTURE:** NWI quadrangle coverage (continued)

OW = open water

**E = ESTUARINE** (ecological system)
- 1 = subtidal (subsystem)
  - RB = rock bottom (class)
    - 1 = bedrock (subclass)
    - 2 = boulder
  - UB = unconsolidated bottom
    - 1 = cobble/gravel
    - 2 = sand
    - 3 = mud
    - 4 = organic
  - AB = aquatic bed
    - 1 = submergent algal
    - 2 = submergent vascular
    - 4 = floating leaved
    - 5 = floating
    - 6 = unknown submergent
    - 7 = unknown surface
  - RF = reef
    - 2 = mollusc
    - 3 = worm
  - OW = open water
- 2 = intertidal
  - AB = aquatic bed
    - 1 = submergent algal
    - 2 = submergent vascular
    - 6 = unknown submergent
    - 7 = unknown surface
  - RF = reef
    - 2 = mollusc
    - 3 = worm
  - FL = flat
    - 1 = cobble/gravel
    - 2 = sand
    - 3 = mud
    - 4 = organic
    - 5 = vegetated pioneer
    - 6 = vegetated non-pioneer

**DATA STRUCTURE:** NWI quadrangle coverage (continued)

SB = stream bed
- 1 = cobble/gravel
- 2 = sand
- 3 = mud
- 4 = organic

RS = rocky shore
- 1 = bedrock
- 2 = boulder
- 6 = vegetated non-pioneer

BB = beach bar
- 1 = cobble/gravel
- 2 = sand

EM = emergent
- 1 = persistent
- 2 = non-persistent
- 3 = narrow-leaved non-persistent
- 4 = broad leaved non-persistent
- 5 = narrow-leaved persistent
- 6 = broad-leaved persistent

SS = scrub/shrub
- 1 = broad-leaved deciduous
- 2 = broad-leaved evergreen
- 4 = needle-leaved evergreen
- 5 = dead
- 6 = deciduous
- 7 = evergreen

FO = forested
- 1 = broad-leaved deciduous
- 2 = broad-leaved evergreen
- 3 = needle-leaved evergreen
- 5 = dead
- 6 = deciduous
- 7 = evergreen

**MODIFYING TERMS** -
These are added to the class or subclass of the five ecological classes to more adequately describe wetland and aquatic habitats. The FARMED modifier can also be applied at the ecological system level.

**DATA STRUCTURE:** NWI quadrangle coverage (continued)

WATER REGIME

Non-tidal

- A = temporary
- B = saturated
- C = seasonal
- D = seasonal well-drained
- E = seasonal saturated
- F = semipermanent
- G = intermittently exposed
- H = permanent
- J = intermittently flooded
- K = artificial
- Z = intermittently exposed permanent
- W = intermittently flooded temporary
- Y = saturated/semipermanent/seasonals
- U = unknown

Tidal

- K = artificial
- L = subtidal
- M = irregularly exposed
- N = regular
- P = irregular
- R = seasonal tidal
- S = temporary tidal
- T = semipermanent tidal
- V = permanent tidal
- U = unknown

WATER CHEMISTRY

Coastal salinity

- 1 = hyperhaline
- 2 = euhaline
- 3 = mixohaline (brackish)
- 4 = polyhaline
- 5 = mesohaline
- 6 = oligohaline
- 0 = fresh

Inland salinity

- 7 = hypersaline
- 8 = eusaline
- 9 = mixosaline
- 0 = fresh

**DATA STRUCTURE:** NWI quadrangle coverage (continued)

Ph modifiers for all freshwater

- a = acid
- t = circumneutral
- l = alkaline

SOIL

- g = organic
- n = mineral

SPECIAL MODIFIERS

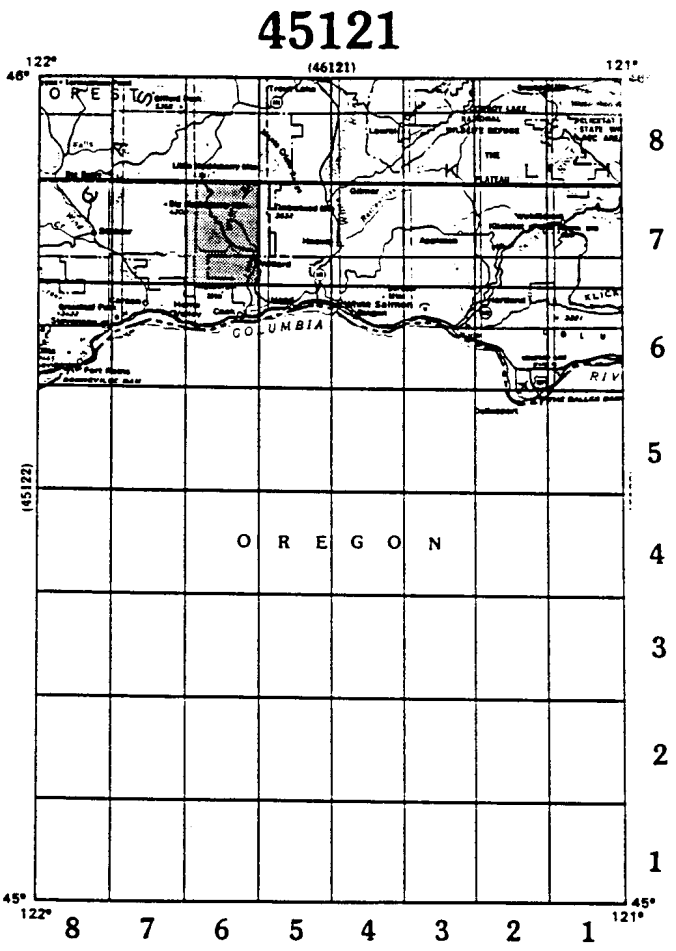
- b = beaver
- d = partially drained/ditched
- f = farmed
- h = diked/impounded
- r = artificial
- s = spoil
- x = excavated

## Appendix A. Derivation of Quadrangle Codes (quadcodes) for USGS 7.5-Minute Maps

DERIVATION OF QUADRANGLE CODES (QUADCODES)
FOR USGS 7.5-MINUTE MAP SHEETS

The quadcode for a US Geological Survey (USGS) 7.5-minute map sheet is a seven-digit numeric code. The first five digits of the code identify the latitude and longitude of the southeast corner of a one degree block of 7.5-minute quadrangles. A one degree block is divided into 8 columns and 8 rows of quadrangles resulting in a total of 64 quadrangles. Each row and column is numbered consecutively beginning at one and using the southeast corner of the block as the origin. The sixth digit of the quadcode identifies the row containing the map sheet while the seventh digit identifies the column.

The diagram below identifies the USGS 7.5-minute quadrangle associated with the quadcode




4512176 and named WILLARD.

It should be noted that USGS 15-minute maps represent the same area portrayed on four 7.5-minute quadrangle maps. As a result, a 15-minute map is represented by four quadcodes.

## Appendix B. Species Use Codes

| | |
|---|---|
| B | Breeding occurrence |
| CR | Communal roost |
| GR | General range |
| HO | Haulout |
| IO | Individual occurrence |
| IR | Individual roost |
| M | Migration |
| PA | Parturition |
| RI | Regularly occurring individual |
| RLC | Regular large concentration |
| RSC | Regular small concentration |
| RC | Regular concentration, relative size not indicated |
| T | Breeding territory |
| L | Lek |
| CF | Peregrine falcon cross foster site |
| H | Peregrine falcon hack site |
| E | Peregrine falcon eyrie |

## Appendix C. Habitat Codes

| | |
|---|---|
| ALPINE | Alpine areas |
| ASPEN | Quaking aspen stands |
| BAY | Bay/estuary (Coastal Zone Atlas-CZA) |
| CAVE | Caves |
| CLIFF | Cliff/bluff |
| DUNE | Sand dunes |
| EEL | Eelgrass meadows |
| ESTUR | Estuarine zone (CZA) |
| GRASS | Grasslands |
| ISLAND | Islands |
| JUNIP | Juniper savannah |
| KELP | Kelp beds |
| LAGOON | Lagoon (CZA) |
| MEADOW | Meadows |
| OAK | Oak woodland |
| OG | Old growth/mature forest |
| POOL | Tide pools |
| PRAIR | Prairies |
| RIPAR | Riparian zones |
| RNOS | Rural natural open space |
| ROCKY | Rocky shores |
| SHRUB | Shrub-steppe |
| SLOUGH | Slough (CZA) |
| SNAG | Snag rich areas |
| STEPPE | Steppe |
| TALUS | Talus |
| UNOS | Urban natural open space |
| WET | Wetlands. Discriminate coastal marsh by using land use code 68, estuarine marsh, in the land use field. |

## Appendix D. Special Criteria Codes

D Damage control area. Applies to an identified winter range where WDFW manages against the species. Could be applied to areas which were historical ranges but where management practices such as fencing now exclude wildlife use but may also be areas for potential WDFW acquisition.

EW Elk wallow

HC Very high concentration. This applies to game species for which an identified concentration area is known and mapped and is significant. There are also areas where animals are extremely concentrated and identifiable. Mapped as a polygon within the winter range polygon.

AS Artificial structure

F Artificial feeding site

T Raptor territory; defended area around an active nest.

## Appendix E. Special Species Codes

The following codes are used to identify species groups when there is no management need to distinguish multiple species use of an area.

| | |
|---|---|
| BIGA | Big game (excluding species and limiting habitats defined as priority for other mapping phases, e.g. elk winter range) |
| CANED | Cavity-nesting ducks |
| GREBE | Grebe species |
| GULL | Gull species |
| PENI | Pennipeds |
| SEBI | Seabird (excluding gulls) concentrations |
| SHBI | Shorebird concentrations |
| SWAN | Swan species |
| WAFO | Waterfowl concentrations |

## Appendix F. Information Source Codes

GENERAL SOURCES

| | |
|---|---|
| LIT | Literature |
| LOCAL | Local knowledge of individuals not involved professionally in fish and wildlife management. |
| PROF | Knowledge of one or more professionals working in fish and wildlife science. |
| SIGN | Vocalization, track, or other sign |

MAPS

| | |
|---|---|
| CZA | Coastal Zone Atlas of Washington, Washington Department of Ecology |
| GSMAP | US Geologic Survey Maps (various scales) |
| DNRMAP | Washington Department of Natural Resources (DNR) Public Lands Maps (1:100,000 scale) |
| BLMMAP | US Bureau of Land Management Ownership Map (1:100,000 scale) |
| FSMAP | US Forest Service (USFS) maps |

REMOTE SENSING

| | |
|---|---|
| MSS | LANDSAT satellite MSS sensor |
| ORTHO | DNR, USFS, or other ortho photo |
| PHOTO | Photo interpreted from quality field photography |
| SAT | Satellite information other than SPOT or LANDSAT |
| SPOT | SPOT satellite |
| TM | LANDSAT satellite TM sensor |

SURVEYS

| | |
|---|---|
| BROOD | Brood survey |
| CALL | Survey call count/gobble route |
| DRIVE | Drive by survey |
| HERD | Herd composition count |
| HUNT | Hunter survey, field checks, report cards, etc. |
| NEST | Nest site survey |
| TELEM | Telemetry study/survey |
| TRAN | Non-winter transect survey |
| TREND | Regularly conducted survey to monitor population trends |
| WTRAN | Winter transect survey |

## Appendix G. Species Codes

| EOCODE | COMMON NAME | SCIENTIFIC NAME |
|---|---|---|
| ACAL | CHISELMOUTH | ACROCHEILUS ALUTACEUS |
| ACCO | COOPER'S HAWK | ACCIPITER COOPERII |
| ACGE | NORTHERN GOSHAWK | ACCIPITER GENTILIS |
| ACMA | SPOTTED SANDPIPER | ACTITIS MACULARIA |
| ACME | GREEN STURGEON | ACIPENSER MEDIROSTRIS |
| ACST | SHARP-SHINNED HAWK | ACCIPITER STRIATUS |
| ACTR | WHITE STURGEON | ACIPENSER TRANSMONTANUS |
| ADBR | CALIFORNIA SISTER | ADELPHA BREDOWII CALIFORNICA |
| AEAC | NORTHERN SAW-WHET OWL | AEGOLIUS ACADICUS |
| AECL | CLARK'S GREBE | AECHMOPHORUS CLARKII |
| AEFU | BOREAL OWL | AEGOLIUS FUNEREUS |
| AEOC | WESTERN GREBE | AECHMOPHORUS OCCIDENTALIS |
| AESA | WHITE-THROATED SWIFT | AERONAUTES SAXATALIS |
| AGBE | BELLER'S GROUND BEETLE | AGONUM BELLERI |
| AGPH | RED-WINGED BLACKBIRD | AGELAIUS PHOENICEUS |
| AISP | WOOD DUCK | AIX SPONSA |
| ALAL | MOOSE | ALCES ALCES |
| ALAR | EURASIAN SKYLARK | ALAUDA ARVENSIS |
| ALCH | CHUKAR | ALECTORIS CHUKAR |
| ALNE | NEWCOMB'S LITTORINE SNAIL | ALGAMORDA NEWCOMBIANA |
| ALSA | AMERICAN SHAD | ALOSA SAPIDISSIMA |
| AMBE | SAGE SPARROW | AMPHISPIZA BELLI |
| AMBI | BLACK-THROATED SPARROW | AMPHISPIZA BILINEATA |
| AMGR | NORTHWESTERN SALAMANDER | AMBYSTOMA GRACILE |
| AMLE | LECONTE'S SPARROW | AMMOSPIZA LECONTEII |
| AMMA | LONG-TOED SALAMANDER | AMBYSTOMA MACRODACTYLUM |
| AMRU | ROCK BASS | AMBLOPLITES RUPESTRIS |
| AMSA | GRASSHOPPER SPARROW | AMMODRAMUS SAVANNARUM |
| AMTI | TIGER SALAMANDER | AMBYSTOMA TIGRINUM |
| AMVI | ROADSIDE SKIPPER | AMBLYSCIRTES VIALIS |
| ANAAM | AMERICAN WIGEON | ANAS AMERICANA |
| ANAC | NORTHERN PINTAIL | ANAS ACUTA |
| ANAL | GREATER WHITE-FRONTED GOOSE | ANSER ALBIFRONS |
| ANAM | PRONGHORN | ANTILOCAPRA AMERICANA |
| ANCA | CALIFORNIA FLOATER | ANODONTA CALIFORNIENSIS |
| ANCL | NORTHERN SHOVELER | ANAS CLYPEATA |
| ANCR | GREEN-WINGED TEAL | ANAS CRECCA |
| ANCY | CINNAMON TEAL | ANAS CYANOPTERA |
| ANDI | BLUE-WINGED TEAL | ANAS DISCORS |
| ANPA | PALLID BAT | ANTROZOUS PALLIDUS |
| ANPE | EURASIAN WIGEON | ANAS PENELOPE |
| ANPL | MALLARD | ANAS PLATYRHYNCHOS |
| ANRU | AMERICAN BLACK DUCK | ANAS RUBRIPES |
| ANRUBE | AMERICAN PIPIT | ANTHUS RUBESCENS |
| ANSP | WATER PIPIT | ANTHUS SPINOLETTA |
| ANST | GADWALL | ANAS STREPERA |
| APCO | SCRUB JAY | APHELOCOMA COERULESCENS |
| APRU | MOUNTAIN BEAVER | APLODONTIA RUFA |
| APVI | SURFBIRD | APHRIZA VIRGATA |
| AQCH | GOLDEN EAGLE | AQUILA CHRYSAETOS |
| ARAL | BLACK-CHINNED HUMMINGBIRD | ARCHILOCHUS ALEXANDRI |

| | | |
|---|---|---|
| AREIN | RUDDY TURNSTONE | ARENARIA INTERPRES |
| ARHE | GREAT BLUE HERON | ARDEA HERODIAS |
| ARME | BLACK TURNSTONE | ARENARIA MELANOCEPHALA |
| ASFL | SHORT-EARED OWL | ASIO FLAMMEUS |
| ASOT | LONG-EARED OWL | ASIO OTUS |
| ASTR | TAILED FROG | ASCAPHUS TRUEI |
| ATCU | BURROWING OWL | ATHENE CUNICULARIA |
| AYAF | LESSER SCAUP | AYTHYA AFFINIS |
| AYAM | REDHEAD | AYTHYA AMERICANA |
| AYCO | RING-NECKED DUCK | AYTHYA COLLARIS |
| AYFU | TUFTED DUCK | AYTHYA FULIGULA |
| AYMA | GREATER SCAUP | AYTHYA MARILA |
| AYVA | CANVASBACK | AYTHYA VALISINERIA |
| BAAC | MINKE WHALE | BALAENOPTERA ACUTOROSTRATA |
| BABO | SEI WHALE | BALAENOPTERA BOREALIS |
| BAGL | BLACK RIGHT WHALE | BALAENA GLACIALIS |
| BALO | UPLAND SANDPIPER | BARTRAMIA LONGICAUDA |
| BAMU | BLUE WHALE | BALAENOPTERA MUSCULUS |
| BAPH | FIN WHALE | BALAENOPTERA PHYSALUS |
| BEBA | NORTH PACIFIC BOTTLE-NOSED WHALE | BERARDIUS BAIRDII |
| BOAS | ASTARTE FRITILLARY | BOLORIA ASTARTE |
| BOBE | MEADOW FRITILLARY | BOLORIA BELLONA SSP. |
| BOCE | CEDAR WAXWING | BOMBYCILLA CEDRORUM |
| BOFR | FREYA'S FRITILLARY | BOLORIA FREIJA FREIJA |
| BOGA | BOHEMIAN WAXWING | BOMBYCILLA GARRULUS |
| BOLE | AMERICAN BITTERN | BOTAURUS LENTIGINOSUS |
| BOSE | SILVER-BORDERED BOG FRITILLARY | BOLORIA SELENE ATROCOSTALIS |
| BOUM | RUFFED GROUSE | BONASA UMBELLUS |
| BRBE | BRANT | BRANTA BERNICLA |
| BRBR | KITTLITZ'S MURRELET | BRACHYRAMPHUS BREVIROSTRIS |
| BRCA | CANADA GOOSE | BRANTA CANADENSIS |
| BRCAF | VANCOUVER CANADA GOOSE | BRANTA CANADENSIS FULVA |
| BRCAL | ALEUTIAN CANADA GOOSE | BRANTA CANADENSIS LEUCOPAREIA |
| BRCAMI | CACKLING CANADA GOOSE | BRANTA CANADENSIS MINIMA |
| BRCAMO | WESTERN CANADA GOOSE | BRANTA CANADENSIS MOFFITTI |
| BRCAO | DUSKY CANADA GOOSE | BRANTA CANADENSIS OCCIDENTALIS |
| BRCAT | TAVERNER'S CANADA GOOSE | BRANTA CANADENSIS TAVERNERI |
| BRMA | MARBLED MURRELET | BRACHYRAMPHUS MARMORATUS |
| BUAL | BUFFLEHEAD | BUCEPHALA ALBEOLA |
| BUBO | WESTERN TOAD | BUFO BOREAS |
| BUCL | COMMON GOLDENEYE | BUCEPHALA CLANGULA |
| BUIB | CATTLE EGRET | BUBULCUS IBIS |
| BUIS | BARROW'S GOLDENEYE | BUCEPHALA ISLANDICA |
| BUJA | RED-TAILED HAWK | BUTEO JAMAICENSIS |
| BULA | ROUGH-LEGGED HAWK | BUTEO LAGOPUS |
| BULI | RED-SHOULDERED HAWK | BUTEO LINEATUS |
| BUPL | BROAD-WINGED HAWK | BUTEO PLATYPTERUS |
| BURE | FERRUGINOUS HAWK | BUTEO REGALIS |
| BUST | GREEN-BACKED HERON | BUTORIDES STRIATUS |
| BUSW | SWAINSON'S HAWK | BUTEO SWAINSONI |
| BUVI | GREAT HORNED OWL | BUBO VIRGINIANUS |
| BUVIRE | GREEN HERON | BUTORIDES VIRESCENS |
| BUWO | WOODHOUSE'S TOAD | BUFO WOODHOUSEI |
| CAAC | SHARP-TAILED SANDPIPER | CALIDRIS ACUMINATA |
| CAAF | IMMACULATE GREEN HAIRSTREAK | CALLOPHRYS AFFINUS AFFINIS |

| EOCODE | COMMON NAME | SCIENTIFIC NAME |
|---|---|---|
| CAALP | DUNLIN | CALIDRIS ALPINA |
| CAAN | ANNA'S HUMMINGBIRD | CALYPTE ANNA |
| CAAU | GOLDFISH | CARASSIUS AURATUS |
| CAAUR | TURKEY VULTURE | CATHARTES AURA |
| CABA | BAIRD'S SANDPIPER | CALIDRIS BAIRDII |
| CACA | LONGNOSE SUCKER | CATOSTOMUS CATOSTOMUS |
| CACAL | CALIFORNIA QUAIL | CALLIPEPLA CALIFORNICA |
| CACANU | RED KNOT | CALIDRIS CANUTUS |
| CACAR | LOGGERHEAD SEA TURTLE | CARETTA CARETTA |
| CACAS | CASSIN'S FINCH | CARPODACUS CASSINII |
| CACO | BRIDGELIP SUCKER | CATOSTOMUS COLUMBIANUS |
| CADUDU | BRAMBLE GREEN HAIRSTREAK | CALLOPHRYS DUMETORUM DUMETORUM |
| CADUOR | OREGON GREEN HAIRSTREAK | CALLOPHRYS DUMETORUM OREGONENSIS |
| CAFL | COMMON REDPOLL | CARDUELIS FLAMMEA |
| CAFU | VEERY | CATHARUS FUSCESCENS |
| CAFUS | WHITE-RUMPED SANDPIPER | CALIDRIS FUSCICOLLIS |
| CAGU | HERMIT THRUSH | CATHARUS GUTTATUS |
| CAHI | STILT SANDPIPER | CALIDRIS HIMANTOPUS |
| CALA | LAPLAND LONGSPUR | CALCARIUS LAPPONICUS |
| CALAL | SANDERLING | CALIDRIS ALBA |
| CALAT | COYOTE | CANIS LATRANS |
| CALFE | CURLEW SANDPIPER | CALIDRIS FERRUGINEA |
| CALPU | SEMIPALMATED SANDPIPER | CALIDRIS PUSILLA |
| CALU | GRAY WOLF | CANIS LUPUS |
| CAMA | LARGESCALE SUCKER | CATOSTOMUS MACROCHEILUS |
| CAMAU | WESTERN SANDPIPER | CALIDRIS MAURI |
| CAME | LARK BUNTING | CALAMOSPIZA MELANOCORYS |
| CAMEL | PECTORAL SANDPIPER | CALIDRIS MELANOTOS |
| CAMI | LEAST SANDPIPER | CALIDRIS MINUTILLA |
| CAOR | CHESTNUT-COLLARED LONGSPUR | CALCARIUS ORNATUS |
| CAPAMA | ARCTIC SKIPPER | CARTEROCEPHALUS PALAEMON MANDAN |
| CAPI | PINE SISKIN | CARDUELIS PINUS |
| CAPL | MOUNTAIN SUCKER | CATOSTOMUS PLATYRHYNCHUS |
| CAPS | LESSER GOLDFINCH | CARDUELIS PSALTRIA |
| CAPT | ROCK SANDPIPER | CALIDRIS PTILOCNEMIS |
| CARME | HOUSE FINCH | CARPODACUS MEXICANUS |
| CARPU | PURPLE FINCH | CARPODACUS PURPUREUS |
| CASAL | GREAT EGRET | CASMERODIUS ALBUS |
| CASCAN | BEAVER | CASTOR CANADENSIS |
| CASE | WILLET | CATOPTROPHORUS SEMIPALMATUS |
| CASHNE | CANYON GREEN HAIRSTREAK | CALLOPHRYS SHERIDANII NEOPERPLEXA |
| CASK | SOUTH POLAR SKUA | CATHARACTA SKUA |
| CASP | SALISH SUCKER | CATOSTOMUS SP. |
| CATME | CANYON WREN | CATHERPES MEXICANUS |
| CATR | AMERICAN GOLDFINCH | CARDUELIS TRISTIS |
| CAUR | NORTHERN FUR SEAL | CALLORHINUS URSINUS |
| CAUS | SWAINSON'S THRUSH | CATHARUS USTULATUS |
| CEAL | BELTED KINGFISHER | CERYLE ALCYON |
| CEAM | BROWN CREEPER | CERTHIA AMERICANA |
| CEAREC | BRANDED AZURES | CELASTRINA ARGIOLUS ECHO |
| CECO | PIGEON GUILLEMOT | CEPPHUS COLUMBA |
| CEEL | ELK | CERVUS ELAPHUS |
| CEELN | ROCKY MOUNTAIN ELK | CERVUS ELAPHUS NELSONI |

| EOCODE | COMMON NAME | SCIENTIFIC NAME |
|---|---|---|
| CEELR | ROOSEVELT ELK | CERVUS ELAPHUS ROOSEVELTI |
| CEMO | RHINOCEROS AUKLET | CERORHINCA MONOCERATA |
| CEUR | SAGE GROUSE | CENTROCERCUS UROPHASIANUS |
| CHAL | SNOWY PLOVER | CHARADRIUS ALEXANDRINUS |
| CHBO | RUBBER BOA | CHARINA BOTTAE |
| CHCAE | SNOW GOOSE | CHEN CAERULESCENS |
| CHCAN | EMPEROR GOOSE | CHEN CANAGICA |
| CHGR | LARK SPARROW | CHONDESTES GRAMMACUS |
| CHMI | COMMON NIGHTHAWK | CHORDEILES MINOR |
| CHMO | MOUNTAIN PLOVER | CHARADRIUS MONTANUS |
| CHNI | BLACK TERN | CHLIDONIAS NIGER |
| CHPAPA | NORTHERN CHECKERSPOT | CHLOSYNE PALLA PALLA |
| CHPI | PAINTED TURTLE | CHRYSEMYS PICTA |
| CHRO | ROSS' GOOSE | CHEN ROSSII |
| CHSE | SEMIPALMATED PLOVER | CHARADRIUS SEMIPALMATUS |
| CHVA | VAUX'S SWIFT | CHAETURA VAUXI |
| CHVO | KILLDEER | CHARADRIUS VOCIFERUS |
| CICO | COLUMBIA RIVER TIGER BEETLE | CICINDELA COLUMBICA |
| CICY | NORTHERN HARRIER | CIRCUS CYANEUS |
| CIME | AMERICAN DIPPER | CINCLUS MEXICANUS |
| CIPA | MARSH WREN | CISTOTHORUS PALUSTRIS |
| CLCA | WESTERN RED-BACKED VOLE | CLETHRIONOMYS CALIFORNICUS |
| CLGA | SOUTHERN RED-BACKED VOLE | CLETHRIONOMYS GAPPERI |
| CLHY | OLDSQUAW | CLANGULA HYEMALIS |
| CLMA | WESTERN POND TURTLE | CLEMMYS MARMORATA |
| CLMY | GREEN SEA TURTLE | CHELONIA MYDAS |
| COAL | COASTRANGE SCULPIN | COTTUS ALEUTICUS |
| COAM | YELLOW-BILLED CUCKOO | COCCYZUS AMERICANUS |
| COAS | PRICKLY SCULPIN | COTTUS ASPER |
| COAU | NORTHERN FLICKER | COLAPTES AURATUS |
| COBA | MOTTLED SCULPIN | COTTUS BAIRDI |
| COBE | PIUTE SCULPIN | COTTUS BELDINGI |
| COBO | OLIVE-SIDED FLYCATCHER | CONTOPUS BOREALIS |
| COBR | AMERICAN CROW | CORVUS BRACHYRHYNCHOS |
| COCA | NORTHWESTERN CROW | CORVUS CAURINUS |
| COCL | LAKE WHITEFISH | COREGONUS CLUPEAFORMIS |
| COCOG | SLIMY SCULPIN | COTTUS COGNATUS |
| COCON | SHORTHEAD SCULPIN | COTTUS CONFUSUS |
| COCOR | COMMON RAVEN | CORVUS CORAX |
| COER | BLACK-BILLED CUCKOO | COCCYZUS ERYTHROPTHALMUS |
| COFA | BAND-TAILED PIGEON | COLUMBA FASCIATA |
| COGU | RIFFLE SCULPIN | COTTUS GULOSUS |
| COINS | ISLAND OCHRE RINGLET | COENONYMPHA "TULLIA" INSULANA |
| COLCO | RACER | COLUBER CONSTRICTOR |
| COLI | ROCK DOVE | COLUMBA LIVIA |
| COMA | MARGINED SCULPIN | COTTUS MARGINATUS |
| CONA | LABRADOR SULPHUR | COLIAS NASTES STRECKERI |
| CONO | YELLOW RAIL | COTURNICOPS NOVEBORACENSIS |
| CONTE | SHARP-TAILED SNAKE | CONTIA TENUIS |
| COOCOC | WESTERN SULPHUR | COLIAS OCCIDENTALIS OCCIDENTALIS |
| COPE | RETICULATE SCULPIN | COTTUS PERPLEXUS |
| COPL | LAKE CHUB | COUESIUS PLUMBEUS |
| CORH | TORRENT SCULPIN | COTTUS RHOTHEUS |

| EOCODE | COMMON NAME | SCIENTIFIC NAME |
|---|---|---|
| COSO | WESTERN WOOD-PEWEE | CONTOPUS SORDIDULUS |
| COVE | EVENING GROSBEAK | COCCOTHRAUSTES VESPERTINUS |
| COVI | NORTHERN BOBWHITE | COLINUS VIRGINIANUS |
| CRVI | WESTERN RATTLESNAKE | CROTALUS VIRIDIS |
| CYAG | SHINER PERCH | CYMATOGASTER AGGREGATA |
| CYBU | TRUMPETER SWAN | CYGNUS BUCCINATOR |
| CYCA | CARP | CYPRINUS CARPIO |
| CYCO | TUNDRA SWAN | CYGNUS COLUMBIANUS |
| CYCR | BLUE JAY | CYANOCITTA CRISTATA |
| CYNI | BLACK SWIFT | CYPSELOIDES NIGER |
| CYPS | PARAKEET AUKLET | CYCLORRHYNCHUS PSITTACULA |
| CYST | STELLER'S JAY | CYANOCITTA STELLERI |
| CYVI | AMERICAN PAINTED LADY | VANESSA VIRGINIENSIS |
| DEBI | FULVOUS WHISTLING DUCK | DENDROCYGNA BICOLOR |
| DECA | SPRUCE GROUSE | DENDRAGAPUS CANADENSIS |
| DECO | LEATHERBACK SEA TURTLE | DERMOCHELYS CORIACEA |
| DECOR | YELLOW-RUMPED WARBLER | DENDROICA CORONATA |
| DEDE | SADDLE-BACKED DOLPHIN | DELPHINUS DELPHIS |
| DENI | BLACK-THROATED GRAY WARBLER | DENDROICA NIGRESCENS |
| DEOB | BLUE GROUSE | DENDRAGAPUS OBSCURUS |
| DEOC | HERMIT WARBLER | DENDROICA OCCIDENTALIS |
| DEPA | PALM WARBLER | DENDROICA PALMARUM |
| DEPE | YELLOW WARBLER | DENDROICA PETECHIA |
| DEPEN | CHESTNUT-SIDED WARBLER | DENDROICA PENNSYLVANICA |
| DEST | BLACKPOLL WARBLER | DENDROICA STRIATA |
| DETI | CAPE MAY WARBLER | DENDROICA TIGRINA |
| DETO | TOWNSEND'S WARBLER | DENDROICA TOWNSENDI |
| DIAL | SHORT-TAILED ALBATROSS | DIOMEDEA ALBATRUS |
| DICA | SHY ALBATROSS | DIOMEDEA CAUTA |
| DICO | COPE'S GIANT SALAMANDER | DICAMPTODON COPEI |
| DIIM | LAYSAN ALBATROSS | DIOMEDEA IMMUTABILIS |
| DINI | BLACK-FOOTED ALBATROSS | DIOMEDEA NIGRIPES |
| DIOR | ORD'S KANGAROO RAT | DIPODOMYS ORDII |
| DIPU | RING-NECKED SNAKE | DIADOPHIS PUNCTATUS |
| DITE | PACIFIC GIANT SALAMANDER | DICAMPTODON TENEBROSUS |
| DIVI | VIRGINIA OPOSSUM | DIDELPHIS VIRGINIANA |
| DOID | LONG-HORNED LEAF BEETLE | DONACIA IDOLA |
| DOOR | BOBOLINK | DOLICHONYX ORYZIVORUS |
| DRPI | PILEATED WOODPECKER | DRYOCOPUS PILEATUS |
| DUCA | GRAY CATBIRD | DUMETELLA CAROLINENSIS |
| EAHA | HATCH'S CLICK BEETLE | EANUS HATCHII |
| EGCA | LITTLE BLUE HERON | EGRETTA CAERULEA |
| EGTH | SNOWY EGRET | EGRETTA THULA |
| ELCA | BLACK-SHOULDERED KITE | ELANUS CAERULEUS |
| ELCO | NORTHERN ALLIGATOR LIZARD | ELGARIA COERULEA |
| ELLE | WHITE-TAILED KITE | ELANUS LEUCURUS |
| ELMU | SOUTHERN ALLIGATOR LIZARD | ELGARIA MULTICARINATA |
| EMDI | PACIFIC-SLOPE FLYCATCHER | EMPIDONAX DIFFICILIS |
| EMHA | HAMMOND'S FLYCATCHER | EMPIDONAX HAMMONDII |
| EMMI | LEAST FLYCATCHER | EMPIDONAX MINMUS |
| EMOB | DUSKY FLYCATCHER | EMPIDONAX OBERHOLSERI |
| EMOC | CORDILLERAN FLYCATCHER | EMPIDONAX OCCIDENTALIS |
| EMTR | WILLOW FLYCATCHER | EMPIDONAX TRAILLII |

| EOCODE | COMMON NAME | SCIENTIFIC NAME |
|---|---|---|
| EMWR | GRAY FLYCATCHER | EMPIDONAX WRIGHTII |
| ENES | ENSATINA | ENSATINA ESCHSCHOLTZI |
| ENLU | SEA OTTER | ENHYDRA LUTRIS |
| ENLULU | SEA OTTER | ENHYDRA LUTRIS LUTRIS |
| ENLUNE | SEA OTTER | ENHYDRA LUTRIS NEREIS |
| ENTR | PACIFIC LAMPREY | ENTOSPHENUS TRIDENTATUS |
| EPCLCA | SILVER-SPOTTED SKIPPER | EPARGYREUS CLARUS CALIFORNICUS |
| EPFU | BIG BROWN BAT | EPTESICUS FUSCUS |
| ERAF | AFRANIUS' DUSKYWING | ERYNNIS AFRANIUS |
| ERAL | HORNED LARK | EREMOPHILA ALPESTRIS |
| ERALS | STREAKED HORNED LARK | EREMOPHILA ALPESTRIS STRIGATA |
| ERDO | PORCUPINE | ERETHIZON DORSATUM |
| ERIC | DREAMY DUSKYWING | ERYNNIS ICELUS |
| ERPA | PACUVIUS' DUSKYWING | ERYNNIS PACUVIUS LILIUS |
| ERPE | PERSIUS' DUSKYWING | ERYNNIS PERSIUS |
| ERPR | PROPERTIUS' DUSKYWING | ERYNNIS PROPERTIUS |
| ESAN | GRASS PICKEREL | ESOX AMERICANUS |
| ESLU | NORTHERN PIKE | ESOX LUCIUS |
| ESRO | GRAY WHALE | ESCHRICHTIUS ROBUSTUS |
| EUCA | RUSTY BLACKBIRD | EUPHAGUS CAROLINUS |
| EUCHPE | PERDICCAS CHECKERSPOT | EUPHYDRYAS CHALCEDONA PERDICCAS |
| EUCHWA | SNOWBERRY CHECKERSPOT | EUPHYDRYAS CHALCEDONA WALLACENSIS |
| EUCY | BREWER'S BLACKBIRD | EUPHAGUS CYANOCEPHALUS |
| EUEDYA | WHULGE CHECKERSPOT(TAYLOR'S CHECKERSPOT) | EUPHYDRYAS EDITHA TAYLORI |
| EUJU | NORTHERN SEA LION | EUMETOPIUS JUBATUS |
| EUMA | SPOTTED BAT | EUDERMA MACULATUM |
| EUMO | EURASIAN DOTTEREL | CHARADRIUS MORINELLUS |
| EUSK | WESTERN SKINK | EUMECES SKILTONIANUS |
| EUVE | DUN SKIPPER | EUPHYES VESTRIS VESTRIS |
| EUVEKI | KIOWA SKIPPER | EUPHYES VESTRIS KIOWA |
| EVCOCO | EASTERN TAILED BLUE | EVERES COMYNTAS COMYNTAS |
| FACO | MERLIN | FALCO COLUMBARIUS |
| FAME | PRAIRIE FALCON | FALCO MEXICANUS |
| FAPE | PEREGRINE FALCON | FALCO PEREGRINUS |
| FAPEA | AMERICAN PEREGRINE FALCON | FALCO PEREGRINUS ANATUM |
| FAPEP | PEALE'S PEREGRINE FALCON | FALCO PEREGRINUS PEALEI |
| FAPET | ARCTIC PEREGRINE FALCON | FALCO PEREGRINUS TUNDRIUS |
| FARU | GYRFALCON | FALCO RUSTICOLUS |
| FASP | AMERICAN KESTREL | FALCO SPARVERIUS |
| FECO | MOUNTAIN LION | FELIS CONCOLOR |
| FINU | GIANT COLUMBIA RIVER LIMPET | FISHEROLA NUTTALLI |
| FRCI | TUFTED PUFFIN | FRATERCULA CIRRHATA |
| FRCO | HORNED PUFFIN | FRATERCULA CORNICULATA |
| FRMA | MAGNIFICENT FRIGATEBIRD | FREGATA MAGNIFICENS |
| FUAM | AMERICAN COOT | FULICA AMERICANA |
| FUGL | NORTHERN FULMAR | FULMARUS GLACIALIS |
| GAAC | THREE-SPINE STICKLEBACK | GASTEROSTEUS ACULEATUS |
| GAAD | YELLOW-BILLED LOON | GAVIA ADAMSII |
| GAAF | MOSQUITOFISH | GAMBUSIA AFFINIS |
| GAGA | COMMON SNIPE | GALLINAGO GALLINAGO |
| GAIM | COMMON LOON | GAVIA IMMER |
| GAPA | PACIFIC LOON | GAVIA PACIFICA |
| GAST | RED-THROATED LOON | GAVIA STELLATA |

| EOCODE | COMMON NAME | SCIENTIFIC NAME |
|---|---|---|
| GETR | COMMON YELLOWTHROAT | GEOTHLYPIS TRICHAS |
| GIBI | TUI CHUB | GILA BICOLOR |
| GLGN | NORTHERN PYGMY-OWL | GLAUCIDIUM GNOMA |
| GLMA | SHORT-FINNED PILOT WHALE | GLOBICEPHALA MACRORHYNCHUS |
| GLSA | NORTHERN FLYING SQUIRREL | GLAUCOMYS SABRINUS |
| GOLY | LYNN'S CLUBTAIL | GOMPHUS LYNNAE |
| GRCA | SANDHILL CRANE | GRUS CANADENSIS |
| GRGR | RISSO'S DOLPHIN | GRAMPUS GRISEUS |
| GUGU | WOLVERINE | GULO GULO |
| GYCY | PINYON JAY | GYMNORHINUS CYANOCEPHALUS |
| HABA | BLACK OYSTERCATCHER | HAEMATOPUS BACHMANI |
| HAGR | GOLDEN HAIRSTREAK | HABRODAIS GRUNUS HERRI |
| HALE | BALD EAGLE | HALIAEETUS LEUCOCEPHALUS |
| HATI | CORAL HAIRSTREAK | HARKENCLENUS TITUS IMMACULOSUS |
| HECOOR | OREGON BRANDED SKIPPER | HESPERIA COMMA OREGONIA |
| HEIN | WANDERING TATTLER | HETEROSCELUS INCANUS |
| HEJU | JUBA SKIPPER | HESPERIA JUBA |
| HENE | NEVADA SKIPPER | HESPERIA NEVADA |
| HIHI | HARLEQUIN DUCK | HISTRIONICUS HISTRIONICUS |
| HIME | BLACK-NECKED STILT | HIMANTOPUS MEXICANUS |
| HIPY | CLIFF SWALLOW | HIRUNDO PYRRHONOTA |
| HIRU | BARN SWALLOW | HIRUNDO RUSTICA |
| HYRE | PACIFIC TREEFROG | HYLA REGILLA |
| HYTO | NIGHT SNAKE | HYPSIGLENA TORQUATA |
| ICFU | BLUE CATFISH | ICTALURUS FURCATUS |
| ICGA | NORTHERN ORIOLE | ICTERUS GALBULA |
| ICME | BLACK BULLHEAD | ICTALURUS MELAS |
| ICNA | YELLOW BULLHEAD | ICTALURUS NATALIS |
| ICNE | BROWN BULLHEAD | ICTALURUS NEBULOSUS |
| ICPA | SCOTT'S ORIOLE | ICTERUS PARISORUM |
| ICPU | CHANNEL CATFISH | ICTALURUS PUNCTATUS |
| ICVI | YELLOW-BREASTED CHAT | ICTERIA VIRENS |
| INERSH | SHELTON PINE ELFIN | INCISALIA ERYPHON SHELTONENSIS |
| INMOMO | MOSS ELFIN | INCISALIA MOSSII MOSSII |
| INPO | HOARY ELFIN | INCISALIA POLIA OBSCURA |
| IXNA | VARIED THRUSH | IXOREUS NAEVIUS |
| JUHY | DARK-EYED JUNCO | JUNCO HYEMALIS |
| KOBR | PYGMY SPERM WHALE | KOGIA BREVICEPS |
| LAAR | HERRING GULL | LARUS ARGENTATUS |
| LAAT | LAUGHING GULL | LARUS ATRICILLA |
| LAAY | RIVER LAMPREY | LAMPETRA AYRESI |
| LABO | RED BAT | LASIURUS BOREALIS |
| LACAL | CALIFORNIA GULL | LARUS CALIFORNICUS |
| LACI | HOARY BAT | LASIURUS CINEREUS |
| LACU | SAGEBRUSH VOLE | LAGURUS CURTATUS |
| LADE | RING-BILLED GULL | LARUS DELAWARENSIS |
| LAEX | NORTHERN SHRIKE | LANIUS EXCUBITOR |
| LAGL | GLAUCOUS-WINGED GULL | LARUS GLAUCESCENS |
| LAHE | HEERMANN'S GULL | LARUS HEERMANNI |
| LAHY | GLAUCOUS GULL | LARUS HYPERBOREUS |
| LALE | WHITE-TAILED PTARMIGAN | LAGOPUS LEUCURUS |
| LALU | LOGGERHEAD SHRIKE | LANIUS LUDOVICIANUS |
| LAMI | LITTLE GULL | LARUS MINUTUS |

| EOCODE | COMMON NAME | SCIENTIFIC NAME |
|---|---|---|
| LANO | SILVER-HAIRED BAT | LASIONYCTERIS NOCTIVAGANS |
| LAOB | PACIFIC WHITE-SIDED DOLPHIN | LAGENORHYNCHUS OBLIQUIDENS |
| LAOC | WESTERN GULL | LARUS OCCIDENTALIS |
| LAPH | BONAPARTES GULL | LARUS PHILADELPHIA |
| LAPI | FRANKLIN'S GULL | LARUS PIPIXCAN |
| LARCAN | MEW GULL | LARUS CANUS |
| LARI | WESTERN BROOK LAMPREY | LAMPETRA RICHARDSONI |
| LATH | THAYER'S GULL | LARUS THAYERI |
| LAZO | CALIFORNIA MOUNTAIN KINGSNAKE | LAMPROPELTIS ZONATA |
| LEAM | SNOWSHOE HARE | LEPUS AMERICANUS |
| LEAR | PACIFIC STAGHORN SCULPIN | LEPTOCOTTUS ARMATUS |
| LECA | BLACK-TAILED JACK RABBIT | LEPUS CALIFORNICUS |
| LECY | GREEN SUNFISH | LEPOMIS CYANELLUS |
| LEGI | PUMPKINSEED | LEPOMIS GIBBOSUS |
| LEGU | WARMOUTH | LEPOMIS GULOSUS |
| LEMA | BLUEGILL | LEPOMIS MACROCHIRUS |
| LEOL | OLIVE RIDLEY SEA TURTLE | LEPIDOCHELYS OLIVACEA |
| LETE | GRAY-CROWNED ROSY FINCH | LEUCOSTICTE TEPHROCOTIS |
| LETO | WHITE-TAILED JACK RABBIT | LEPUS TOWNSENDII |
| LEUAR | ROSY FINCH | LEUCOSTICTE ARCTOA |
| LIAR | VICEROY | LIMENITIS ARCHIPPUS LAHONTANI |
| LIBO | NORTHERN RIGHT-WHALE DOLPHIN | LISSODELPHIS BOREALIS |
| LICO | GIANT COLUMBIA SPIRE SNAIL | FLUMINICOLA COLUMBIANA |
| LIFE | MARBLED GODWIT | LIMOSA FEDOA |
| LIGR | SHORT-BILLED DOWITCHER | LIMNODROMUS GRISEUS |
| LIHA | HUDSONIAN GODWIT | LIMOSA HAEMASTICTA |
| LILA | BAR-TAILED GODWIT | LIMOSA LAPPONICA |
| LISC | LONG-BILLED DOWITCHER | LIMNODROMUS SCOLOPACEUS |
| LOCUC | HOODED MERGANSER | LOPHODYTES CUCULLATUS |
| LOLE | WHITE-WINGED CROSSBILL | LOXIA LEUCOPTERA |
| LOLO | BURBOT | LOTA LOTA |
| LOXCU | RED CROSSBILL | LOXIA CURVIROSTRA |
| LUCA | RIVER OTTER | LUTRA CANADENSIS |
| LYCA | LYNX | LYNX CANADENSIS |
| LYCU | LUSTROUS COPPER | LYCAENA CUPREA HENRYAE |
| LYED | EDITH'S COPPER | LYCAENA EDITHA EDITHA |
| LYHE | PURPLISH COPPER | LYCAENA HELLOIDES |
| LYMACH | MAKAH COPPER(QUEEN CHARLOTTE COPPER) | LYCAENA MARIPOSA CHARLOTTENSIS |
| LYRU | BOBCAT | LYNX RUFUS |
| LYRUPE | RUDDY COPPER | LYCAENA RUBIDA PERKINSORUM |
| MAAM | MARTEN | MARTES AMERICANA |
| MACA | HOARY MARMOT | MARMOTA CALIGATA |
| MAFL | YELLOW-BELLIED MARMOT | MARMOTA FLAVIVENTRIS |
| MAOL | OLYMPIC MARMOT | MARMOTA OLYMPUS |
| MAPE | FISHER | MARTES PENNANTI |
| MATA | STRIPED WHIPSNAKE | MASTICOPHIS TAENIATUS |
| MECA | MOORE'S BEAKED WHALE | MESOPLODON CARLHUBBSI |
| MEFO | ACORN WOODPECKER | MELANERPES FORMICIVORUS |
| MEFU | WHITE-WINGED SCOTER | MELANITTA FUSCA |
| MEGA | WILD TURKEY | MELEAGRIS GALLOPAVO |
| MEGAIN | RIO GRANDE WILD TURKEY | MELEAGRIS GALLOPAVO INTERMEDIA |
| MEGAME | MERRIAM'S WILD TURKEY | MELEAGRIS GALLOPAVO MERRIAMI |
| MEGASI | EASTERN WILD TURKEY | MELEAGRIS GALLOPAVO SILVESTRIS |

| EOCODE | COMMON NAME | SCIENTIFIC NAME |
|---|---|---|
| MEGE | SWAMP SPARROW | MELOSPIZA GEORGIANA |
| MELE | LEWIS' WOODPECKER | MELANERPES LEWIS |
| MELI | LINCOLN'S SPARROW | MELOSPIZA LINCOLNII |
| MELME | SONG SPARROW | MELOSPIZA MELODIA |
| MEMEP | STRIPED SKUNK | MEPHITIS MEPHITIS |
| MENI | BLACK SCOTER | MELANITTA NIGRA |
| MENO | HUMP-BACKED WHALE | MEGAPTERA NOVAEANGLIAE |
| MEPE | SURF SCOTER | MELANITTA PERSPICILLATA |
| MERME | COMMON MERGANSER | MERGUS MERGANSER |
| MESE | RED-BREASTED MERGANSER | MERGUS SERRATOR |
| MEST | BERING SEA BEAKED WHALE | MESOPLODON STEJNEGERI |
| MIAN | NORTHERN ELEPHANT SEAL | MIROUNGA ANGUSTIROSTRIS |
| MIBA | BASIN HAIRSTREAK | MITOURA BARRYI |
| MICA | GRAY-TAILED VOLE | MICROTUS CANICAUDUS |
| MIDO | SMALLMOUTH BASS | MICROPTERUS DOLOMIEUI |
| MIJO | JOHNSON'S (MISTLETOE) HAIRSTREAK | MITOURA JOHNSONI |
| MILO | LONG-TAILED VOLE | MICROTUS LONGICAUDUS |
| MIMO | MONTANE VOLE | MICROTUS MONTANUS |
| MIOR | CREEPING VOLE | MICROTUS OREGONI |
| MIPE | MEADOW VOLE | MICROTUS PENNSYLVANICUS |
| MIPEK | KINCAID'S MEADOW VOLE | MICROTUS PENNSYLVANICUS KINKAIDI |
| MIPO | NORTHERN MOCKINGBIRD | MIMUS POLYGLOTTOS |
| MIRI | WATER VOLE | MICROTUS RICHARDSONI |
| MIRORO | ARBORVITAE HAIRSTREAK | MITOURA ROSNERI ROSNERI |
| MISA | LARGEMOUTH BASS | MICROPTERUS SALMOIDES |
| MISI | JUNIPER HAIRSTREAK | MITOURA SIVA SSP. |
| MISP | THICKET HAIRSTREAK | MITOURA SPINETORUM SPINETORUM |
| MITO | TOWNSEND'S VOLE | MICROTUS TOWNSENDII |
| MITOPU | SHAW ISLAND TOWNSEND'S VOLE | MICROTUS TOWNSENDII PUGETI |
| MNVA | BLACK-AND-WHITE WARBLER | MNIOTILTA VARIA |
| MOAT | BROWN-HEADED COWBIRD | MOLOTHRUS ATER |
| MOSA | STRIPED BASS | MORONE SAXATILIS |
| MUER | ERMINE | MUSTELA ERMINEA |
| MUFR | LONG-TAILED WEASEL | MUSTELA FRENATA |
| MUMU | HOUSE MOUSE | MUS MUSCULUS |
| MUVI | MINK | MUSTELA VISON |
| MYCA | PEAMOUTH | MYLOCHEILUS CAURINUS |
| MYCI | ASH-THROATED FLYCATCHER | MYIARCHUS CINERASCENS |
| MYCO | NUTRIA | MYOCASTOR COYPUS |
| MYEV | LONG-EARED MYOTIS | MYOTIS EVOTIS |
| MYKE | KEEN'S MYOTIS | MYOTIS KEENII |
| MYLE | SMALL-FOOTED MYOTIS | MYOTIS LEIBII |
| MYLU | LITTLE BROWN MYOTIS | MYOTIS LUCIFUGUS |
| MYOCA | CALIFORNIA MYOTIS | MYOTIS CALIFORNICUS |
| MYTH | FRINGED MYOTIS | MYOTIS THYSANODES |
| MYTO | TOWNSEND'S SOLITAIRE | MYADESTES TOWNSENDI |
| MYVO | LONG-LEGGED MYOTIS | MYOTIS VOLANS |
| MYYU | YUMA MYOTIS | MYOTIS YUMANENSIS |
| NECI | BUSHY-TAILED WOODRAT | NEOTOMA CINEREA |
| NEFU | DUSKY-FOOTED WOODRAT | NEOTOMA FUSCIPES |
| NEGI | SHREW-MOLE | NEUROTRICHUS GIBBSII |
| NOGY | TADPOLE MADTOM | NOTURUS GYRINUS |
| NOHU | OLYMPIC MUDMINNOW | NOVUMBRA HUBBSI |

| EOCODE | COMMON NAME | SCIENTIFIC NAME |
|---|---|---|
| NUAM | LONG-BILLED CURLEW | NUMENIUS AMERICANUS |
| NUCO | CLARK'S NUTCRACKER | NUCIFRAGA COLUMBIANA |
| NUPH | WHIMBREL | NUMENIUS PHAEOPUS |
| NYNY | BLACK-CROWNED NIGHT-HERON | NYCTICORAX NYCTICORAX |
| NYSC | SNOWY OWL | NYCTEA SCANDIACA |
| NYVA | COMPTON TORTOISESHELL | NYMPHALIS VAU-ALBUM WATSONI |
| OAGA | GARITA SKIPPERLING | OARISMA GARITA |
| OCFU | FORK-TAILED STORM-PETREL | OCEANODROMA FURCATA |
| OCLE | LEACH'S STORM-PETREL | OCEANODROMA LEUCORHOA |
| OCPR | PIKA | OCHOTONA PRINCEPS |
| OCSYBO | BONNEVILLE SKIPPER | OCHLODES SYLVANOIDES BONNEVILLA |
| OCSYOR | COASTAL WOODLAND SKIPPER | OCHLODES SYLVANOIDES ORECOASTA |
| OCYU | YUMA SKIPPER | OCHLODES YUMA |
| ODHE | MULE AND BLACK-TAILED DEER | ODOCOILEUS HEMIONUS |
| ODHEC | COLUMBIAN BLACK-TAILED DEER | ODOCOILEUS HEMIONUS COLUMBIANUS |
| ODHEH | MULE DEER | ODOCOILEUS HEMIONUS HEMIONUS |
| ODVI | WHITE-TAILED DEER | ODOCOILEUS VIRGINIANUS |
| ODVIL | COLUMBIAN WHITE-TAILED DEER | ODOCOILEUS VIRGINIANUS LEUCURUS |
| ODVIO | NORTHWEST WHITE-TAILED DEER | ODOCOILEUS VIRGINIANUS OCHROURUS |
| OECHC | CHRYXUS ARCTIC | OENEIS CHRYXUS CHRYXUS |
| OECHV | VALERATA ARCTIC | OENEIS CHRYXUS VALERATA |
| OEME | MELISSA ARCTIC | OENEIS MELISSA BEANII |
| OENEGI | GREAT GRAYLING | OENEIS NEVADENSIS GIGAS |
| ONCL | CUTTHROAT | ONCORHYNCHUS CLARKI |
| ONCLCL | COASTAL CUTTHROAT | ONCORHYNCHUS CLARKI CLARKI |
| ONCLLE | WESTSLOPE CUTTHROAT | ONCORHYNCHUS CLARKI LEWISI |
| ONGO | PINK SALMON | ONCORHYNCHUS GORBUSCHA |
| ONKE | CHUM SALMON | ONCORHYNCHUS KETA |
| ONKI | COHO SALMON | ONCORHYNCHUS KISUTCH |
| ONLE | NORTHERN GRASSHOPPER MOUSE | ONYCHOMYS LEUCOGASTER |
| ONLEW | WESTSLOPE CUTTHROAT | ONCORHYNCHUS LEWISI |
| ONMY | RAINBOW TROUT | ONCORHYNCHUS MYKISS |
| ONNE | SOCKEYE SALMON | ONCORHYNCHUS NERKA |
| ONNEANA | SOCKEYE SALMON (ANADROMOUS) | ONCORHYNCHUS NERKA |
| ONNELAN | KOKANEE (LANDLOCKED SOCKEYE) | ONCORHYNCHUS NERKA |
| ONNESNA | SOCKEYE SALMON (SNAKE R.) | ONCORHYNCHUS NERKA |
| ONTS | CHINOOK SALMON | ONCORHYNCHUS TSHAWYTSCHA |
| ONTSSNF | CHINOOK SALMON(SNAKE R. FALL) | ONCORHYNCHUS TSHAWYTSCHA |
| ONTSSNS | CHINOOK SALMON(SNAKE R. SP/SU) | ONCORHYNCHUS TSHAWYTSCHA |
| ONZI | MUSKRAT | ONDATRA ZIBETHICUS |
| OPTO | MACGILLIVRAY'S WARBLER | OPORORNIS TOLMIEI |
| ORAM | MOUNTAIN GOAT | OREAMNOS AMERICANUS |
| ORCU | EUROPEAN RABBIT | ORYCTOLAGUS CUNICULUS |
| ORMO | SAGE THRASHER | OREOSCOPTES MONTANUS |
| OROR | KILLER WHALE | ORCINUS ORCA |
| ORPI | MOUNTAIN QUAIL | OREORTYX PICTUS |
| OTFL | FLAMMULATED OWL | OTUS FLAMMEOLUS |
| OTKE | WESTERN SCREECH-OWL | OTUS KENNICOTTII |
| OVCA | BIGHORN SHEEP | OVIS CANADENSIS |
| OVCACAL | CALIFORNIA BIGHORN SHEEP | OVIS CANADENSIS CALIFORNIANA |
| OVCACAN | ROCKY MOUNTAIN BIGHORN SHEEP | OVIS CANADENSIS CANADENSIS |
| OXJA | RUDDY DUCK | OXYURA JAMAICENSIS |
| PAAM | NORTHERN PARULA | PARULA AMERICANA |

| EOCODE | COMMON NAME | SCIENTIFIC NAME |
|---|---|---|
| PAAMO | LAZULI BUNTING | PASSERINA AMOENA |
| PAAT | BLACK-CAPPED CHICKADEE | PARUS ATRICAPILLUS |
| PACL | SHEPARD'S PARNASSIAN | PARNASSIUS CLODIUS SHEPARDI |
| PACY | INDIGO BUNTING | PASSERINA CYANEA |
| PADO | HOUSE SPARROW | PASSER DOMESTICUS |
| PAEB | IVORY GULL | PAGOPHILA EBURNEA |
| PAGA | MOUNTAIN CHICKADEE | PARUS GAMBELI |
| PAGL | EASTERN TIGER SWALLOWTAIL | PAPILIO GLAUCUS CANADENSIS |
| PAHA | OSPREY | PANDION HALIAETUS |
| PAHU | BOREAL CHICKADEE | PARUS HUDSONICUS |
| PAIL | FOX SPARROW | PASSERELLA ILIACA |
| PARU | CHESTNUT-BACKED CHICKADEE | PARUS RUFESCENS |
| PASA | SAVANNAH SPARROW | PASSERCULUS SANDWICHENSIS |
| PECA | GRAY JAY | PERISOREUS CANADENSIS |
| PEER | AMERICAN WHITE PELICAN | PELECANUS ERYTHRORHYNCHOS |
| PEFL | YELLOW PERCH | PERCA FLAVESCENS |
| PEMA | DEER MOUSE | PEROMYSCUS MANICULATUS |
| PEOC | BROWN PELICAN | PELECANUS OCCIDENTALIS |
| PEOR | LONG-TAILED DEER MOUSE | PEROMYSCUS OREAS |
| PEPA | GREAT BASIN POCKET MOUSE | PEROGNATHUS PARVUS |
| PEPE | GRAY PARTRIDGE | PERDIX PERDIX |
| PETR | SAND ROLLER | PERCOPSIS TRANSMONTANA |
| PHAE | RED-BILLED TROPICBIRD | PHAETHON AETHEREUS |
| PHALFU | RED PHALAROPE | PHALAROPUS FULICARIA |
| PHAU | DOUBLE-CRESTED CORMORANT | PHALACROCORAX AURITUS |
| PHCO | RING-NECKED PHEASANT | PHASIANUS COLCHICUS |
| PHDA | DALL'S PORPOISE | PHOCOENOIDES DALLI |
| PHDO | SHORT-HORNED LIZARD | PHRYNOSOMA DOUGLASSI |
| PHIN | HEATHER VOLE | PHENACOMYS INTERMEDIUS |
| PHLO | RED-NECKED PHALAROPE | PHALAROPUS LOBATUS |
| PHLU | ROSE-BREASTED GROSBEAK | PHEUCTICUS LUDOVICIANUS |
| PHMA | SPERM WHALE | PHYSETER MACROCEPHALUS |
| PHME | BLACK-HEADED GROSBEAK | PHEUCTICUS MELANOCEPHALUS |
| PHNU | COMMON POORWILL | PHALAENOPTILUS NUTTALLII |
| PHPA | PALE CRESCENT | PHYCIODES PALLIDUS BARNESI |
| PHPAS | PASCO PEARL CRESCENT | PHYCIODES "THAROS" PASCOENSIS |
| PHPEL | PELAGIC CORMORANT | PHALACROCORAX PELAGICUS |
| PHPEN | BRANDT'S CORMORANT | PHALACROCORAX PENICILLATUS |
| PHPH | PACIFIC HARBOR PORPOISE | PHOCOENA PHOCOENA |
| PHPU | RUFF | PHILOMACHUS PUGNAX |
| PHTR | WILSON'S PHALAROPE | PHALAROPUS TRICOLOR |
| PHVI | HARBOR SEAL | PHOCA VITULINA |
| PIAL | WHITE-HEADED WOODPECKER | PICOIDES ALBOLARVATUS |
| PIAR | BLACK-BACKED WOODPECKER | PICOIDES ARCTICUS |
| PICA | GOPHER SNAKE | PITUOPHIS CATENIFER |
| PICACA | PACIFIC GOPHER SNAKE | PITUOPHIS CATENIFER CATENIFER |
| PICH | GREEN-TAILED TOWHEE | PIPILO CHLORURUS |
| PIEN | PINE GROSBEAK | PINICOLA ENUCLEATOR |
| PIER | RUFOUS-SIDED TOWHEE | PIPILO ERYTHROPHTHALMUS |
| PIHE | WESTERN PIPISTRELLE | PIPISTRELLUS HESPERUS |
| PILU | WESTERN TANAGER | PIRANGA LUDOVICIANA |
| PIME | GOPHER SNAKE | PITUOPHIS CATENIFER |
| PIMEC | PACIFIC GOPHER SNAKE | PITUOPHIS MALANOLENUCUS CATENIFER |

| EOCODE | COMMON NAME | SCIENTIFIC NAME |
|---|---|---|
| PIPI | BLACK-BILLED MAGPIE | PICA PICA |
| PIPR | CHECKERED WHITE | PIERIS (PONTIA) PROTODICE |
| PIPU | DOWNY WOODPECKER | PICOIDES PUBESCENS |
| PITR | THREE-TOED WOODPECKER | PICOIDES TRIDACTYLUS |
| PIVI | HAIRY WOODPECKER | PICOIDES VILLOSUS |
| PLAQ | HIGH MOUNTAIN BLUE | AGRIADES GLANDON MEGALO |
| PLCH | WHITE-FACED IBIS | PLEGADIS CHIHI |
| PLDO | AMERICAN GOLDEN-PLOVER | PLUVIALIS DOMINICA |
| PLDU | DUNN'S SALAMANDER | PLETHODON DUNNI |
| PLFU | PACIFIC GOLDEN-PLOVER | PLUVIALIS FULVA |
| PLHY | MCKAY'S BUNTING | PLECTROPHENAX HYPERBOREUS |
| PLICER | PUGET BLUE | PLEBEJUS ICARIOIDES ERYMUS |
| PLLA | LARCH MOUNTAIN SALAMANDER | PLETHODON LARSELLI |
| PLNI | SNOW BUNTING | PLECTROPHENAX NIVALIS |
| PLSQ | BLACK-BELLIED PLOVER | PLUVIALIS SQUATAROLA |
| PLST | STARRY FLOUNDER | PLATICHTHYS STELLATUS |
| PLTO | TOWNSEND'S BIG-EARED BAT | PLECOTUS TOWNSENDII |
| PLTOP | TOWNSEND'S BIG-EARED BAT | PLECOTUS TOWNSENDII PALLISCENS |
| PLTOT | TOWNSEND'S BIG-EARED BAT | PLECOTUS TOWNSENDII TOWNSENDII |
| PLVA | VAN DYKE'S SALAMANDER | PLETHODON VANDYKEI |
| PLVE | WESTERN RED-BACKED SALAMANDER | PLETHODON VEHICULUM |
| POAN | WHITE CRAPPIE | POMOXIS ANNULARIS |
| POAU | HORNED GREBE | PODICEPS AURITUS |
| POCO | YELLOWPATCH SKIPPER | POLITES CORAS |
| PODNI | EARED GREBE | PODICEPS NIGRICOLLIS |
| POGR | RED-NECKED GREBE | PODICEPS GRISEGENA |
| POGRA | OREGON VESPER SPARROW | POOECETES GRAMINEUS AFFINIS |
| POLCA | BLUE-GRAY GNATCATCHER | POLIOPTILA CAERULEA |
| POMA | MARDON SKIPPER | POLITES MARDON |
| POMY | LONG-DASH SKIPPER | POLITES MYSTIC SSP. |
| PONI | BLACK CRAPPIE | POMOXIS NIGROMACULATUS |
| POOGR | VESPER SPARROW | POOECETES GRAMINEUS |
| POOR | OREAS ANGLEWING | POLYGONIA OREAS |
| POPO | PIED-BILLED GREBE | PODILYMBUS PODICEPS |
| PORCA | SORA | PORZANA CAROLINA |
| POSO | SONORA SKIPPER | POLITES SONORA SONORA |
| POSOS | SONORA SKIPPER | POLITES SONORA SIRIS |
| POTH | TAWNY-EDGED SKIPPER | POLITES THEMISTOCLES |
| PRCI | PROTHONOTARY WARBLER | PROTONOTARIA CITREA |
| PRCO | PYGMY WHITEFISH | PROSOPIUM COULTERI |
| PRLO | RACCOON | PROCYON LOTOR |
| PRSU | PURPLE MARTIN | PROGNE SUBIS |
| PRWI | MOUNTAIN WHITEFISH | PROSOPIUM WILLIAMSONI |
| PSCR | FALSE KILLER WHALE | PSEUDORCA CRASSIDENS |
| PSMI | BUSHTIT | PSALTRIPARUS MINIMUS |
| PSSC | POND SLIDER | PSEUDEMYS SCRIPTA |
| PTAL | CASSIN'S AUKLET | PTYCHORAMPHUS ALEUTICUS |
| PTIN | MOTTLED PETREL | PTERODROMA INEXPECTATA |
| PTOR | NORTHERN SQUAWFISH | PTYCHOCHEILUS OREGONENSIS |
| PUBU | BULLER'S SHEARWATER | PUFFINUS BULLERI |
| PUCA | FLESH-FOOTED SHEARWATER | PUFFINUS CARNEIPES |
| PUCR | PINK-FOOTED SHEARWATER | PUFFINUS CREATOPUS |
| PUGR | SOOTY SHEARWATER | PUFFINUS GRISEUS |

| EOCODE | COMMON NAME | SCIENTIFIC NAME |
|---|---|---|
| PUTE | SHORT-TAILED SHEARWATER | PUFFINUS TENUIROSTRIS |
| PYCE | ALPINE CHECKERED SKIPPER | PYRGUS CENTAUREAE LOKI |
| PYOL | FLATHEAD CATFISH | PYLODICTIS OLIVARIS |
| QUQU | COMMON GRACKLE | QUISCALUS QUISCULA |
| RAAU | RED-LEGGED FROG | RANA AURORA |
| RACAT | BULLFROG | RANA CATESBEIANA |
| RACL | GREEN FROG | RANA CLAMITANS |
| RALI | VIRGINIA RAIL | RALLUS LIMICOLA |
| RALU | COLUMBIA SPOTTED FROG | RANA LUTEIVENTRIS |
| RANCA | CASCADES FROG | RANA CASCADAE |
| RANO | NORWAY RAT | RATTUS NORVEGICUS |
| RAPI | NORTHERN LEOPARD FROG | RANA PIPIENS |
| RAPR | OREGON SPOTTED FROG | RANA PRETIOSA |
| RARA | BLACK RAT | RATTUS RATTUS |
| RASY | WOOD FROG | RANA SYLVATICA |
| RATA | MOUNTAIN CARIBOU | RANGIFER TARANDUS |
| REAM | AMERICAN AVOCET | RECURVIROSTRA AMERICANA |
| RECA | RUBY-CROWNED KINGLET | REGULUS CALENDULA |
| REME | WESTERN HARVEST MOUSE | REITHRODONTOMYS MEGALOTIS |
| RESA | GOLDEN-CROWNED KINGLET | REGULUS SATRAPA |
| RHCA | LONGNOSE DACE | RHINICHTHYS CATARACTAE |
| RHCAS | CASCADE TORRENT SALAMANDER | RHYACOTRITON CASCADAE |
| RHCASS | NOOKY DACE | RHINICHTHYS CATARACTAE SSP. |
| RHFA | LEOPARD DACE | RHINICHTHYS FALCATUS |
| RHKE | COLUMBIA TORRENT SALAMANDER | RHYACOTRITON KEZERI |
| RHOL | OLYMPIC TORRENT SALAMANDER | RHYACOTRITON OLYMPICUS |
| RHOS | SPECKLED DACE | RHINICHTHYS OSCULUS |
| RIBA | REDSIDE SHINER | RICHARDSONIUS BALTEATUS |
| RIBR | RED-LEGGED KITTIWAKE | RISSA BREVIROSTRIS |
| RIRI | BANK SWALLOW | RIPARIA RIPARIA |
| RITR | BLACK-LEGGED KITTIWAKE | RISSA TRIDACTYLA |
| SAAG | GOLDEN TROUT | SALMO AGUABONITA |
| SACO | BULL TROUT | SALVELINUS CONFLUENTUS |
| SAFO | BROOK TROUT | SALVELINUS FONTINALIS |
| SAMA | DOLLY VARDEN | SALVELINUS MALMA |
| SANA | LAKE TROUT | SALVELINUS NAMAYCUSH |
| SAOB | ROCK WREN | SALPINCTES OBSOLETUS |
| SASA | ATLANTIC SALMON | SALMO SALAR |
| SASY | SYLVAN HAIRSTREAK | SATYRIUM SYLVINUM SYLVINUM |
| SASYL | SYLVAN HAIRSTREAK | SATYRIUM SYLVINUM PUTNAMI |
| SATR | BROWN TROUT | SALMO TRUTTA |
| SAYSA | SAY'S PHOEBE | SAYORNIS SAYA |
| SCCA | GRAY SQUIRREL | SCIURUS CAROLINENSIS |
| SCGRA | SAGEBRUSH LIZARD | SCELOPORUS GRACIOSUS |
| SCGRI | WESTERN GRAY SQUIRREL | SCIURUS GRISEUS |
| SCLA | BROAD-FOOTED MOLE | SCAPANUS LATIMANUS |
| SCNI | FOX SQUIRREL | SCIURUS NIGER |
| SCOC | WESTERN FENCE LIZARD | SCELOPORUS OCCIDENTALIS |
| SCOR | COAST MOLE | SCAPANUS ORARIUS |
| SCTO | TOWNSEND'S MOLE | SCAPANUS TOWNSENDII |
| SEAU | OVENBIRD | SEIURUS AUROCAPILLUS |
| SENO | NORTHERN WATERTHRUSH | SEIURUS NOVEBORACENSIS |
| SERU | AMERICAN REDSTART | SETOPHAGA RUTICILLA |

| EOCODE | COMMON NAME | SCIENTIFIC NAME |
|---|---|---|
| SERUF | RUFOUS HUMMINGBIRD | SELASPHORUS RUFUS |
| SESA | ALLEN'S HUMMINGBIRD | SELASPHORUS SASIN |
| SICAR | WHITE-BREASTED NUTHATCH | SITTA CAROLINENSIS |
| SICU | MOUNTAIN BLUEBIRD | SIALIA CURRUCOIDES |
| SIME | WESTERN BLUEBIRD | SIALIA MEXICANA |
| SIPY | PYGMY NUTHATCH | SITTA PYGMAEA |
| SITCA | RED-BREASTED NUTHATCH | SITTA CANADENSIS |
| SOBE | PACIFIC WATER SHREW | SOREX BENDIRII |
| SOCI | MASKED SHREW | SOREX CINEREUS |
| SOFE | FENDER'S SOLIPERLAN STONEFLY | SOLIPERLA FENDERI |
| SOHO | PYGMY SHREW | SOREX HOYI |
| SOME | MERRIAM'S SHREW | SOREX MERRIAMI |
| SOMO | DUSKY SHREW | SOREX MONTICOLUS |
| SOPAL | WATER SHREW | SOREX PALUSTRIS |
| SOPR | PREBLES SHREW | SOREX PREBLEI |
| SOTRO | TROWBRIDGE'S SHREW | SOREX TROWBRIDGII |
| SOTROD | DESTRUCTION ISLAND SHREW | SOREX TROWBRIDGII DESTRUCTIONI |
| SOVA | VAGRANT SHREW | SOREX VAGRANS |
| SPAR | AMERICAN TREE SPARROW | SPIZELLA ARBOREA |
| SPBEE | CALIFORNIA GROUND SQUIRREL | SPERMOPHILUS BEECHEYI |
| SPBR | BREWER'S SPARROW | SPIZELLA BREWERI |
| SPCO | COLUMBIAN GROUND SQUIRREL | SPERMOPHILUS COLUMBIANUS |
| SPEG | EGLEIS FRITILLARY | SPEYERIA EGLEIS OWENI |
| SPEGM | EGLEIS FRITILLARY | SPEYERIA EGLEIS MCDUNNOUGHI |
| SPGR | SPOTTED SKUNK | SPILOGALE GRACILIS |
| SPHTH | WILLIAMSON'S SAPSUCKER | SPHYRAPICUS THYROIDEUS |
| SPHYRH | HYDASPE FRITILLARY | SPEYERIA HYDASPE RHODOPE |
| SPIN | GREAT BASIN SPADEFOOT | SPEA INTERMONTANA |
| SPLA | GOLDEN-MANTLED GROUND SQUIRREL | SPERMOPHILUS LATERALIS |
| SPLE | PUGET SOUND SILVERSPOT | SPEYERIA CYBELE PUGETENSIS |
| SPNU | RED-NAPED SAPSUCKER | SPHYRAPICUS NUCHALIS |
| SPPA | CHIPPING SPARROW | SPIZELLA PASSERINA |
| SPPAL | CLAY-COLORED SPARROW | SPIZELLA PALLIDA |
| SPRU | RED-BREASTED SAPSUCKER | SPHYRAPICUS RUBER |
| SPSA | CASCADE GOLDEN-MANTLED GROUND SQUIRREL | SPERMOPHILUS SATURATUS |
| SPTH | LONGFIN SMELT | SPIRINCHUS THALEICHTHYS |
| SPTO | TOWNSEND'S GROUND SQUIRREL | SPERMOPHILUS TOWNSENDII |
| SPWA | WASHINGTON GROUND SQUIRREL | SPERMOPHILUS WASHINGTONI |
| SPZE | ZERENE FRITILLARY | SPEYERIA ZERENE |
| SPZEBR | VALLEY SILVERSPOT | SPEYERIA ZERENE BREMNERII |
| SPZEHI | OREGON SILVERSPOT | SPEYERIA ZERENE HIPPOLYTA |
| STAN | LEAST TERN | STERNA ANTILLARUM |
| STCA | CASPIAN TERN | STERNA CASPIA |
| STCO | STRIPED DOLPHIN | STENELLA COERULEOALBA |
| STELCA | CALLIOPE HUMMINGBIRD | STELLULA CALLIOPE |
| STFO | FORSTER'S TERN | STERNA FORSTERI |
| STHI | COMMON TERN | STERNA HIRUNDO |
| STLO | LONG-TAILED JAEGER | STERCORARIUS LONGICAUDUS |
| STNE | GREAT GRAY OWL | STRIX NEBULOSA |
| STOC | SPOTTED OWL | STRIX OCCIDENTALIS |
| STPA | PARASITIC JAEGER | STERCORARIUS PARASITICUS |
| STPAR | ARCTIC TERN | STERNA PARADISAEA |
| STPO | POMARINE JAEGER | STERCORARIUS POMARINUS |

| EOCODE | COMMON NAME | SCIENTIFIC NAME |
|---|---|---|
| STSE | NORTHERN ROUGH-WINGED SWALLOW | STELGIDOPTERYX SERRIPENNIS |
| STUNE | WESTERN MEADOWLARK | STURNELLA NEGLECTA |
| STVA | BARRED OWL | STRIX VARIA |
| STVI | WALLEYE | STIZOSTEDION VITREUM |
| STVU | EUROPEAN STARLING | STURNUS VULGARIS |
| SUNE | BLUE-FOOTED BOOBY | SULA NEBOUXII |
| SUUL | NORTHERN HAWK OWL | SURNIA ULULA |
| SYAN | ANCIENT MURRELET | SYNTHLIBORAMPHUS ANTIQUUS |
| SYBO | NORTHERN BOG LEMMING | SYNAPTOMYS BOREALIS |
| SYFL | EASTERN COTTONTAIL | SYLVILAGUS FLORIDANUS |
| SYHY | XANTUS' MURRELET | SYNTHLIBORAMPHUS HYPOLEUCUS |
| SYID | PYGMY RABBIT | BRACHYLAGUS IDAHOENSIS |
| SYNU | NUTTALL'S COTTONTAIL | SYLVILAGUS NUTTALLII |
| TAAM | YELLOW-PINE CHIPMUNK | TAMIAS AMOENUS |
| TABI | TREE SWALLOW | TACHYCINETA BICOLOR |
| TADO | DOUGLAS' SQUIRREL | TAMIASCIURUS DOUGLASII |
| TAGR | ROUGHSKIN NEWT | TARICHA GRANULOSA |
| TAHU | RED SQUIRREL | TAMIASCIURUS HUDSONICUS |
| TAMI | LEAST CHIPMUNK | TAMIAS MINIMUS |
| TARU | RED-TAILED CHIPMUNK | TAMIAS RUFICAUDUS |
| TATA | BADGER | TAXIDEA TAXUS |
| TATH | VIOLET-GREEN SWALLOW | TACHYCINETA THALASSINA |
| TATO | TOWNSEND'S CHIPMUNK | TAMIAS TOWNSENDII |
| THAR | ARCTIC GRAYLING | THYMALLUS ARCTICUS |
| THBE | BEWICK'S WREN | THRYOMANES BEWICKII |
| THEL | WESTERN TERRESTRIAL GARTER SNAKE | THAMNOPHIS ELEGANS |
| THMA | WESTERN POCKET GOPHER | THOMOMYS MAZAMA |
| THMAC | SHELTON POCKET GOPHER | THOMOMYS MAZAMA COUCHI |
| THMAG | ROY PRAIRIE POCKET GOPHER | THOMOMYS MAZAMA GLACIALIS |
| THMAL | CATHLAMET POCKET GOPHER | THOMOMYS MAZAMA LOUIEI |
| THMAME | OLYMPIC POCKET GOPHER | THOMOMYS MAZAMA MELANOPS |
| THMAT | TENINO POCKET GOPHER | THOMOMYS MAZAMA TUMULI |
| THMATA | TACOMA POCKET GOPHER | THOMOMYS MAZAMA TACOMENSIS |
| THOR | NORTHWESTERN GARTER SNAKE | THAMNOPHIS ORDINOIDES |
| THPA | EULACHON | THALEICTHYS PACIFICUS |
| THPY | NORTHERN CLOUDY WING | THORYBES PYLADES |
| THSI | COMMON GARTER SNAKE | THAMNOPHIS SIRTALIS |
| THTA | NORTHERN POCKET GOPHER | THOMOMYS TALPOIDES |
| THTAD | BRUSH PRAIRIE POCKET GOPHER | THOMOMYS TALPOIDES DOUGLASI |
| THTAL | WHITE SALMON POCKET GOPHER | THOMOMYS TALPOIDES LIMOSUS |
| TITI | TENCH | TINCA TINCA |
| TRAE | HOUSE WREN | TROGLODYTES AEDON |
| TRFL | LESSER YELLOWLEGS | TRINGA FLAVIPES |
| TRME | GREATER YELLOWLEGS | TRINGA MELANOLEUCA |
| TRSO | SOLITARY SANDPIPER | TRINGA SOLITARIA |
| TRSU | BUFF-BREASTED SANDPIPER | TRYNGITES SUBRUFICOLLIS |
| TRTR | WINTER WREN | TROGLODYTES TROGLODYTES |
| TUMI | AMERICAN ROBIN | TURDUS MIGRATORIUS |
| TYAL | BARN OWL | TYTO ALBA |
| TYME | TROPICAL KINGBIRD | TYRANNUS MELANCHOLICUS |
| TYPH | SHARP-TAILED GROUSE | TYMPANUCHUS PHASIANELLUS |
| TYTY | EASTERN KINGBIRD | TYRANNUS TYRANNUS |
| TYVE | WESTERN KINGBIRD | TYRANNUS VERTICALIS |

| EOCODE | COMMON NAME | SCIENTIFIC NAME |
|---|---|---|
| URAA | COMMON MURRE | URIA AALGE |
| URAM | BLACK BEAR | URSUS AMERICANUS |
| URAR | GRIZZLY BEAR | URSUS ARCTOS |
| URLO | THICK-BILLED MURRE | URIA LOMVIA |
| UTST | SIDE-BLOTCHED LIZARD | UTA STANSBURIANA |
| VECE | ORANGE-CROWNED WARBLER | VERMIVORA CELATA |
| VEPE | TENNESSEE WARBLER | VERMIVORA PEREGRINA |
| VERU | NASHVILLE WARBLER | VERMIVORA RUFICAPILLA |
| VIGI | WARBLING VIREO | VIREO GILVUS |
| VIHU | HUTTON'S VIREO | VIREO HUTTONI |
| VIOL | RED-EYED VIREO | VIREO OLIVACEUS |
| VISO | SOLITARY VIREO | VIREO SOLITARIUS |
| VUVU | RED FOX | VULPES VULPES |
| VUVUC | CASCADE RED FOX | VULPES VULPES CASCADENSIS |
| VUVUS | LOWLAND RED FOX | VULPES VULPES SUBSPP |
| WICI | HOODED WARBLER | WILSONIA CITRINA |
| WIPU | WILSON'S WARBLER | WILSONIA PUSILLA |
| XAXA | YELLOW-HEADED BLACKBIRD | XANTHOCEPHALUS XANTHOCEPHALUS |
| XESA | SABINE'S GULL | XEMA SABINI |
| ZACA | CALIFORNIA SEA LION | ZALOPHUS CALIFORNIANUS |
| ZAPR | WESTERN JUMPING MOUSE | ZAPUS PRINCEPS |
| ZATR | PACIFIC JUMPING MOUSE | ZAPUS TRINOTATUS |
| ZEAS | WHITE-WINGED DOVE | ZENAIDA ASIATICA |
| ZEMA | MOURNING DOVE | ZENAIDA MACROURA |
| ZICA | GOOSE-BEAKED WHALE | ZIPHIUS CAVIROSTRIS |
| ZOAL | WHITE-THROATED SPARROW | ZONOTRICHIA ALBICOLLIS |
| ZOAT | GOLDEN-CROWNED SPARROW | ZONOTRICHIA ATRICAPILLA |
| ZOLE | WHITE-CROWNED SPARROW | ZONOTRICHIA LEUCOPHRYS |
| ZOQU | HARRIS' SPARROW | ZONOTRICHIA QUERULA |

## Appendix H. Land Use Codes

Land Cover Classification System
Source: Wildlife Area Inventory

| | | |
|---|---|---|
| 1 Urban or built-up land | 11 industrial, commercial | |
| | 12 residential | |
| | 13 transportation | |
| | 14 right-of-ways (highways, power lines) | |
| | 15 campgrounds | |
| | 16 other urban or built-up land | |
| 2 Agricultural land | 21 croplands, pasture | |
| | 22 orchards, nurseries | |
| | 23 other agricultural lands | |
| 3 Rangeland | 31 herbaceous moist | |
| | 32 herbaceous medium | |
| | 33 herbaceous dry | |
| | 34 shrub, brush moist | 341 tall, closed |
| | | 342 short, closed |
| | | 343 tall, open |
| | | 344 short, open |
| | 35 shrub, brush medium | 351 tall, closed |
| | | 352 short, closed |
| | | 353 tall, open |
| | | 354 short, open |
| | 36 shrub, brush dry | 361 tall, closed |
| | | 362 short, closed |
| | | 363 tall, open |
| | | 364 short, open |
| | 37 mixed moist | |
| | 38 mixed medium | |
| | 39 mixed dry | |
| 4 Forest land | 41 conifer, closed canopy (> 70%) | 411 old growth |
| | | 412 saw timber, large |
| | | 413 saw timber, small |
| | | 414 pole |
| | | 415 lodgepole |
| | | 416 high altitude |

| | | |
|---|---|---|
| | 42 conifer, open canopy (40-70%) | 421 old growth |
| | | 422 lodgepole |
| | | 423 lodgepole, regenerating |
| | | 424 shrub, under story |
| | | 425 herbaceous, under story |
| | | 426 regenerating |
| | | 427 high altitude |
| | 43 conifer woodland | 431 old growth |
| | | 432 lodgepole |
| | | 433 lodgepole, regenerating |
| | | 434 shrub under story |
| | | 435 herbaceous under story |
| | | 436 regenerating |
| | | 437 high altitude |
| | 44 broadleaf, closed | |
| | 45 broadleaf, open | 451 shrub under story |
| | | 452 herbaceous under story |
| | 46 mixed, closed | |
| | 47 mixed, open | 471 Shrub under story |
| | | 472 herbaceous under story |
| | | 473 regenerating |
| | 48 clear cut | 481 barren |
| | | 482 grass/forb |
| | | 483 seedling/shrub |
| 5 Riparian land | 51 conifer, closed | 511 old growth |
| | 52 conifer, open | 521 shrub under story |
| | | 522 herbaceous under story |
| | | 523 regenerating |
| | 53 broadleaf | |
| | 54 mixed trees | |
| | 55 shrub | |
| | 56 herbaceous | |
| 6 Wetlands | 61 conifer forest (swamp) | |
| | 62 broadleaf forest (swamp) | |
| | 63 mixed forest (swamp) | |
| | 64 shrub (swamp) | |
| | 65 emergent vegetation (marsh) | |
| | 66 moss (bog) | |
| | 67 aquatic bed (pond) | |
| | 68 estuarine marsh | |

| | | |
|---|---|---|
| 7 Aquatic types | 71 open water (lake, reservoir, pond, ocean) | |
| | 72 rivers | 721 mainstream, grad < 1% |
| | | 722 mainstream, grad 1-4% |
| | | 723 mainstream, grad > 4% |
| | | 724 tributary, grad < 1% |
| | | 725 tributary, grad 1-4% |
| | | 726 tributary, grad 4-6% |
| | | 727 tributary, grad 6-12% |
| | | 728 tributary, grad > 12% |
| | | 729 gravel bars, unvegetated flood plains |
| 8 Barren and tundra land | 81 rock | |
| | 82 talus | |
| | 83 sand | |
| | 84 strip mines, quarries | |
| | 85 bare ground | 851 reservoir drawdown |
| | | 852 other bare ground |
| | 86 shrub, brush | |
| | 87 herbaceous | |
| 9 Perennial snow or ice | 91 snowfields | |
| | 92 glaciers | |

## Appendix I. Ownership Codes

| | |
|---|---|
| BIANPSF | US Bureau of Indian Affairs, US National Park Service |
| BIAPVTFP | US Bureau of Indian Affairs, private |
| BIAPVTFS | US Bureau of Indian Affairs, private, US Forest Service |
| BLMPINFP | US Bureau of Land Management, private individual |
| BLMPVTFP | US Bureau of Land Management, private |
| BLMPVTFPS | US Bureau of Land Management, private, with some state land |
| DNRBLMSFP | WA Department of Natural Resources, US Bureau of Land Management |
| DNRFS SF | WA Department of Natural Resources, US Forest Service |
| DNRPINSP | WA Department of Natural Resources, private individual |
| DNRPVTSP | WA Department of Natural Resources, private |
| DNRPVTSPF | WA Department of Natural Resources, private, with some federal land |
| DNRWDWSPF | WA Department of Natural Resources, WA Department of Fish and Wildlife, with some federal land |
| ERDDNRFS | US Energy Resource Development, WA Department of Natural Resources |
| ERDFWSF | US Energy Resource Development, US Fish and Wildlife Service |
| ERDWDWFS | US Energy Resource Development, WA Department of Fish and Wildlife |
| FS BIAF | US Forest Service, US Bureau of Indian Affairs |
| FS DNRFS | US Forest Service, WA Department of Natural Resources |
| FS DNRFSP | US Forest Service, WA Department of Natural Resources, private |
| FS DNRPVT | US Forest Service, WA Department of Natural Resources, private |
| FS PVTFP | US Forest Service, private |
| FS PVTFPS | US Forest Service, private, with some state land |
| FWSPVTFP | US Fish and Wildlife Service, private |
| FWSWDWFS | US Fish and Wildlife Service, WA Department of Fish and Wildlife |
| LOCCTY | Local county government |
| LOCMUN | Local city government |
| LOCPVT | Local government, private |
| NPSBIAF | US National Park Service, US Bureau of Indian Affairs |
| NPSFS F | US National Park Service, US Forest Service |
| NPSFWSF | US National Park Service, US Fish and Wildlife Service |
| NPSPVTFPS | US National Park Service, private, with some state land |
| PINBLMPF | Private individual, US Bureau of Land Management |
| PVTBIAPF | Private, US Bureau of Indian Affairs |
| PVTBLMPF | Private, US Bureau of Land Management (or PVTBLMFP) |
| PVTDNRPS | Private, WA Department of Natural Resources (or PVTDNRSP) |
| PVTDODPF | Private, US Department of Defense |
| PVTFS PF | Private, US Forest Service |
| PVTPIN | Private individual |
| PVTPVT | Private corporation |
| PVTTNC | Private, The Nature Conservancy |
| PVTUAA | Private, University |
| PVTUUU | Private unknown |

| | |
|---|---|
| SPRDNRS | WA Department of State Parks and Recreation, WA Department of Natural Resources |
| SPRPVTSP | WA Department of State Parks and Recreation, private |
| ST | Washington State |
| ST DNR | WA Department of Natural Resources |
| ST SPR | WA Department of State Parks and Recreation |
| ST UAA | WA State university system |
| ST UOW | University of Washington |
| ST WFW | WA Department of Fish and Wildlife (old WDF) |
| ST WDT | WA Department of Transportation |
| TNCPVT | The Nature Conservancy, private |
| USABIA | US Bureau of Indian Affairs |
| USABLM | US Bureau of Land Management |
| USABOR | US Bureau of Reclamation |
| USABPA | Bonneville Power Administration |
| USACOE | US Army Corps of Engineers |
| USADOA | US Department of the Army |
| USADOD | US Department of Defense |
| USAERD | US Department of Energy Resource Development |
| USAFHA | US Farmers Home Administration |
| USAFS | US Forest Service |
| USAFWS | US Fish and Wildlife Service |
| USAGS | US Geological Survey |
| USANPS | US National Park Service |
| USAPVTMI | Federal, private ownership |
| USAUUU | Federal land, agency ownership unknown |
| UUUUU | Unknown (same as a blank) |
| WDWERDSF | WA Department of Fish and Wildlife, US Energy Resource Development |
| WDWPVTSP | Wa Department of Fish and Wildlife, private |

## Appendix J. Wildlife Species List with Status and Buffer Distances

Note: Where the buffer distance is zero, data are polygonal in nature, thus, reaches which intersect unbuffered polygons are assigned wildlife data.

### Protection Status Codes

| State Status | | Federal Status | |
|---|---|---|---|
| SE | = state endangered | FE | = federal endangered |
| ST | = state threatened | FT | = federal threatened |
| SS | = state sensitive | FS | = federal sensitive |
| SC | = state candidate | FC | = federal candidate |
| SM | = state monitored | | |

### Wildlife Species Codes

| Common Name | Species Code | Federal Status | State Status | PHS Y/N | Buffer Dist. (meters) |
|---|---|---|---|---|---|
| American White Pelican | PEER | FS | SE | N | 3220 |
| Arctic Tern | STPAR | | SM | N | 310 |
| Aspen | ASPEN | | | Y | 0 |
| Band-tailed Pigeon | COFA | | | Y | 0 |
| Barrow's Goldeneye | BUIS | | | Y | 0 |
| Bighorn Sheep | OVCA | | | Y | 0 |
| Blue Grouse | DEOB | | | Y | 0 |
| Bald Eagle | HALE | FT | ST | Y | 3220 |
| Barred Owl | STVA | | SM | N | 310 |
| Beller's Ground Beetle | AGBE | FC2 | SC | Y | 800 |
| Black Swift | CYNI | | SM | N | 310 |
| Black Tern | CHNI | | SM | N | 310 |
| Black-backed Woodpecker | PIAR | | SM | Y | 310 |
| Black-crowned Night Heron | NYNY | | SM | N | 310 |
| Black-necked Stilt | HIME | | SM | N | 310 |
| Brandt's Cormorant | PHPEN | | SC | N | 800 |
| Burrowing Owl | ATCU | | SC | N | 800 |
| Cavity Nesting Ducks | CANED | | | Y | 0 |
| Columbian Black-tailed Deer | ODHEC | | | Y | 0 |
| Common Goldeneye | BUCL | | | Y | 0 |
| California Mountain Kingsnake | LAZO | | SC | N | 800 |
| Caspian Tern | STCA | | SM | N | 310 |
| Cave | CAVE | | | Y | 0 |
| Clark's Grebe | AECL | | SM | N | 310 |
| Cliffs | CLIFF | | | Y | 0 |
| Columbian White-tailed Deer | ODVIL | | | Y | 0 |
| Common Loon | GAIM | FS | SC | Y | 1610 |
| Cope's Giant Salamander | DICO | | SM | N | 310 |
| Dunn's Salamander | PLDU | | SC | Y | 800 |
| Elk | CEEL | | | Y | 0 |
| Ferruginous Hawk | BURE | FC2 | ST | N | 1610 |

| | | | | | |
|---|---|---|---|---|---|
| *Fisher* | *MAPE* | | *SC* | *Y* | *800* |
| *Forster's Tern* | *STFO* | | *SM* | *N* | *310* |
| *Fringed Myotis* | *MYTH* | | *SM* | *N* | *310* |
| *Giant Columbia River Limpet* | *FINU* | *FC2* | *SC* | *N* | *1610* |

| *Common Name* | *Species Code* | *Federal Status* | *State Status* | *PHS Y/N* | *Buffer Dist. (meters)* |
|---|---|---|---|---|---|
| *Golden Eagle* | *AQCH* | | *SC* | *Y* | *800* |
| *Golden Hairstreak* | *HAGR* | | *SC* | *Y* | *1610* |
| *Grasshopper Sparrow* | *AMSA* | | *SM* | *N* | *310* |
| *Gray Wolf* | *CALU* | *FE* | *SE* | *Y* | *3220* |
| *Giant Columbia R. Spire Snail* | *LICO* | *FC2* | *SC* | *N* | *1610* |
| *Great Blue Heron* | *ARHE* | | *SM* | *Y* | *310* |
| *Great Egret* | *CASAL* | | *SM* | *N* | *310* |
| *Great Gray Owl* | *STNE* | *FS* | *SM* | *N* | *310* |
| *Green-backed Heron* | *BUST* | | *SM* | *N* | *310* |
| *Green-tailed Towhee* | *PICH* | | *SC* | *N* | *800* |
| *Grizzly Bear* | *URAR* | *FT* | *SE* | *Y* | *3220* |
| *Harlequin Duck* | *HIHI* | | | *Y* | *0* |
| *Hooded Merganser* | *LOCUC* | | | *Y* | *0* |
| *Larch Mountain Salamander* | *PLLA* | *FC2* | *SC* | *Y* | *1610* |
| *Lesser Goldfinch* | *CAPS* | | *SM* | *N* | *310* |
| *Lewis' Woodpecker* | *MELE* | *FS* | *SC* | *Y* | *800* |
| *Loggerhead Shrike* | *LALU* | | *SC* | *N* | *800* |
| *Long-billed Curlew* | *NUAM* | *FC2* | *SM* | *N* | *310* |
| *Long-eared Myotis* | *MYEV* | | *SM* | *N* | *310* |
| *Long-legged Myotis* | *MYVO* | | *SM* | *N* | *310* |
| *Lynx* | *LYCA* | | | *Y* | *0* |
| *Marten* | *MAAM* | | | *Y* | *0* |
| *Moose* | *ALAL* | | | *Y* | *0* |
| *Mountain Goat* | *ORAM* | | | *Y* | *0* |
| *Mule and Black-tailed Deer* | *ODHE* | | | *Y* | *0* |
| *Mule Deer* | *ODHEH* | | | *Y* | *0* |
| *Marbled Murrelet* | *BRMA* | *FC2* | *SC* | *Y* | *800* |
| *Mardon Skipper* | *POMA* | | *SC* | *N* | *800* |
| *Merlin* | *FACO* | | *SM* | *N* | *310* |
| *Northwest White-tailed Deer* | *ODVIO* | | | *Y* | *0* |
| *Night Snake* | *HYTO* | | *SM* | *N* | *310* |
| *Northern Spotted Owl* | *STOC* | *FT* | *ST* | *Y* | *3540* |
| *Northern Bog Lemming* | *SYBO* | | *SM* | *N* | *310* |
| *Northern Goshawk* | *ACGE* | | *SC* | *Y* | *800* |
| *Northern Grasshopper Mouse* | *ONLE* | | *SM* | *N* | *310* |
| *Oak Woodland* | *OAK* | | | *Y* | *0* |
| *Olympic Mudminnow* | *NOHU* | *FC2* | *SC* | *Y* | *800* |
| *Olympic Salamander* | *RHOL* | | *SM* | *N* | *310* |
| *Ord's Kangaroo Rat* | *DIOR* | | *SM* | *N* | *310* |
| *Oregon Silverspot* | *SPZE* | *FT* | *SC* | *Y* | *1610* |
| *Oregon Vesper Sparrow* | *POGRA* | | *SM* | *N* | *310* |
| *Osprey* | *PAHA* | | *SM* | *Y* | *310* |
| *Pallid Bat* | *ANPA* | | *SM* | *N* | *310* |
| *Peregrine Falcon* | *FAPE* | *FE* | *SE* | *Y* | *3220* |
| *Pileated Woodpecker* | *DRPI* | | *SC* | *Y* | *800* |

| Common Name | Species Code | Federal Status | State Status | PHS Y/N | Buffer Dist. (meters) |
|---|---|---|---|---|---|
| Prairie Falcon | FAME | | SM | N | 310 |
| Purple Martin | PRSU | FS | SC | Y | 800 |
| Pygmy Rabbit | SYID | | SC | N | 1610 |
| Pygmy Shrew | SOHO | | SC | Y | 800 |
| Pygmy Whitefish | PRCO | | SM | Y | 310 |
| Rocky Mountain Bighorn Sheep | OVCACAN | | | Y | 0 |
| Rocky Mountain Elk | CEELN | | | Y | 0 |
| Roosevelt Elk | CEELR | | | Y | 0 |
| Red-necked Grebe | POGR | | SM | N | 310 |
| Ring-necked Snake | DIPU | | SM | N | 310 |
| Riparian Area | RIPAR | | | Y | 0 |
| Roy Prairie Pocket Gopher | THMAG | FC2 | SC | N | 800 |
| Sage Grouse | CEUR | FC2 | SC | N | 800 |
| Sage Sparrow | AMBE | | SC | N | 800 |
| Sage Thrasher | ORMO | | SC | N | 800 |
| Sand Roller | PETR | | SM | N | 310 |
| Sandhill Crane | GRCA | FS | SE | Y | 3220 |
| Sea Otter | ENLU | | SE | N | 3220 |
| Sharp-tailed Grouse | TYPH | FC2 | SC | N | 800 |
| Shepard's Parnassian | PACL | | SC | N | 1610 |
| Snag Rich Area | SNAG | | | Y | 0 |
| Snowy Plover | CHAL | FC2 | SE | N | 3220 |
| Southern Alligator Lizard | ELMU | | SM | N | 310 |
| Spotted Frog (Oregon) | RAPR | | SC | Y | 800 |
| Streaked Horned Lark | ERALS | | SM | N | 310 |
| Striped Whipsnake | MATA | | SC | N | 800 |
| Swainson's Hawk | BUSW | | SC | N | 800 |
| Talus Slopes | TALUS | | | Y | 0 |
| Thicket Hairstreak | MISP | | SM | N | 310 |
| Three-toed Woodpecker | PITR | | SM | N | 310 |
| Tiger Salamander | AMTI | | SM | N | 310 |
| Townsend's Big-eared Bat | PLTO | FC2 | SC | Y | 1610 |
| Turkey Vulture | CAAUR | | SM | N | 310 |
| Upland Sandpiper | BALO | | SE | N | 3220 |
| Van Dyke's Salamander | PLVA | | SC | Y | 800 |
| Vaux's Swift | CHVA | | SC | Y | 800 |
| White-tailed Deer | ODVI | | | Y | 0 |
| Wild Turkey | MEGA | | | Y | 0 |
| Wood Duck | AISP | | | Y | 0 |
| Washington Ground Squirrel | SPNA | | SM | N | 310 |
| Western Bluebird | SIME | FS | SC | Y | 800 |
| Western Gray Squirrel | SCGRI | | SC | Y | 800 |
| Western Grebe | AEOC | | SM | N | 310 |
| Western Pipistrelle | PIHE | | SM | N | 310 |
| Western Pond Turtle | CLMA | FC2 | SC | Y | 1610 |
| Wetland | WET | | | Y | 0 |
| White-headed Woodpecker | PIAL | | SC | Y | 800 |
| Whulge Checkerspot | EUEDYA | | SC | N | 800 |
| Wolverine | GUGU | FC2 | SM | N | 310 |
| Woodhouse's Toad | BUWO | | SM | N | 310 |
| Woodland Caribou | RATA | FE | SE | Y | 3220 |

## Appendix K. Resident and Anadromous Fish Codes

### Game Fish Codes

| Species Code | Species Name |
|---|---|
| LMB | Bass, Largemouth |
| RKB | Bass, Rock |
| SMB | Bass, Smallmouth |
| SB | Bass, Stripped |
| BG | Bluegill |
| BH | Bullhead (General) |
| YBH | Bullhead, Yellow |
| BBH | Bullhead, Brown |
| BLB | Bullhead, Black |
| CP | Carp |
| BCF | Catfish, Blue |
| CC | Catfish, Channel |
| FCF | Catfish, Flathead |
| AC | Char, Arctic |
| C | Crappie, General |
| BC | Crappie, Black |
| WC | Crappie, White |
| EUL | Eulachon |
| SF | Flounder, Starry |
| AG | Grayling, Arctic |
| TMK | Musky, Tiger |
| SP | Perch, Shiner |
| YP | Perch, Yellow |
| NP | Pike, Northern |
| PS | Pumpkinseed |
| AT | Salmon, Atlantic |
| CK | Salmon, Chinook |
| CH | Salmon, Chum |
| CO | Salmon, Coho |
| K | Salmon, Kokanee |
| SA | Salmon, Pacific Unknown |
| PK | Salmon, Pink |
| SO | Salmon, Sockeye |
| AMS | Shad, American |
| LFS | Smelt, Longfin |
| SS | Steelhead, Summer-run |
| SW | Steelhead, Winter-run |

| Species Code | Species Name |
|---|---|
| SH | Steelhead, Unknown |
| GRS | Sturgeon, Green |
| WS | Sturgeon, White |
| S | Sunfish, General |
| GS | Sunfish, Green |
| BT | Trout, Brown |
| CT | Trout, Cutthroat Unknown |
| CCT | Trout, Cutthroat Coastal Resident |
| SCT | Trout, Cutthroat Coastal Searun |
| LCT | Trout, Cutthroat Lahontan |
| WCT | Trout, Cutthroat West Slope |
| DB | Trout, Dolly Varden/Bull Unknown |
| BLC | Trout, Bull |
| DVC | Trout, Dolly Varden |
| EB | Trout, Eastern Brook |
| GT | Trout, Golden |
| LT | Trout, Lake |
| RB | Trout, Rainbow Resident |
| RU | Trout, Rainbow Unknown |
| TR | Trout, Unknown |
| WAL | Walleye |
| WM | Warmouth |
| LW | Whitefish, Lake |
| WF | Whitefish, Mountain |

**Non-game Fish Codes**

| Species Code | Species Name |
|---|---|
| BUR | Burbot |
| CMO | Chiselmouth |
| LCH | Chub, Lake |
| TCH | Chub, Tui |
| LED | Dace, Speckled |
| LND | Dace, Longnose |
| SD | Dace, Speckled |
| GF | Goldfish |
| LM | Lamprey, General |
| PL | Lamprey, Pacific |
| RL | Lamprey, River |
| WL | Lamprey, Western Brook |
| MQF | Mosquitofish |

| Species Code | Species Name |
|---|---|
| OMM | Mudminnow, Olympic |
| PMO | Peamouth |
| P | Pickerel, Grass |
| SAN | Sandroller |
| COT | Sculpin, General |
| CSS | Sculpin, Coast Range |
| MRS | Sculpin, Margined |
| MTS | Sculpin, Mottled |
| PSS | Sculpin, Pacific Staghorn |
| PTS | Sculpin, Piute |
| PRS | Sculpin, Prickly |
| RTS | Sculpin, Reticulate |
| RFS | Sculpin, Riffle |
| SHS | Sculpin, Shorthead |
| SLS | Sculpin, Slimy |
| TRS | Sculpin, Torrent |
| RS | Shiner, Redside |
| NSF | Squawfish, Northern |
| TSS | Stickleback, Three-spine |
| SK | Sucker, General |
| BRS | Sucker, Bridgelip |
| LRS | Sucker, Largescale |
| LNS | Sucker, Longnose |
| MNS | Sucker, Mountain |
| TMT | Tadpole Madton |
| TNC | Tench |
| WAD | White Amur-diploid |
| WAT | White Amur-triploid |
| PGW | Whitefish, Pygmy |

## Appendix L. Hydrologic Unit Codes and Basin List

| Hydrologic Unit Code | Major River or Water Body |
|---|---|
| Pend Oreille | |
| 17010214 | Blanchard Creek |
| 17010215 | Lower West Branch Priest River |
| 17010216 | Pend Oreille River |
| Spokane | |
| 17010303 | Lake Creek |
| 17010305 | Upper Spokane River |
| 17010306 | Hangman Creek |
| 17010307 | Lower Spokane River |
| 17010308 | Little Spokane River |
| Upper Columbia | |
| 17020001 | Franklin D. Roosevelt Lake |
| 17020002 | Kettle River |
| 17020003 | Colville River |
| 17020004 | Sanpoil River |
| 17020005 | Middle Columbia River (Wells Dam) |
| 17020006 | Okanogan River |
| 17020007 | Similkameen River |
| 17020008 | Methow River |
| 17020009 | Lake Chelan |
| 17020010 | Middle Columbia River (Rock Island Dam) |
| 17020011 | Wenatchee River |
| 17020012 | Moses Coulee |
| 17020013 | Crab Creek |
| 17020014 | Banks Lake |
| 17020015 | Lower Crab Creek |
| 17020016 | Middle Columbia River (Priest Rapids Dam) |
| Yakima | |
| 17030001 | Upper Yakima River |
| 17030002 | Naches River |
| 17030003 | Lower Yakima River |
| Snake | |
| 17060103 | Asotin Creek |
| 17060106 | Grande Ronde River |
| 17060107 | Snake River |
| 17060108 | Palouse River |
| 17060109 | Rock River |
| 17060110 | Lower Snake River (Ice Harbor Dam) |

| Hydrologic Unit Code | Major River or Water Body |
|---|---|
| Klickitat | |
| 17070101 | Lake Wallula |
| 17070102 | Walla Walla River |
| 17070105 | White Salmon River |
| 17070106 | Klickitat River |
| Cowlitz | |
| 17080001 | Washougal River |
| 17080002 | Lewis River |
| 17080003 | Kalama River |
| 17080004 | Upper Cowlitz River |
| 17080005 | Lower Cowlitz River |
| 17080006 | Grays River |
| Coast | |
| 17100101 | Hoh River |
| 17100102 | Quinault River |
| 17100103 | Upper Chehalis River |
| 17100104 | Lower Chehalis River |
| 17100105 | Humptulips River |
| 17100106 | Willapa River |
| Puget Sound | |
| 17110001 | Fraser River |
| 17110002 | Samish River |
| 17110003 | San Juan Islands |
| 17110004 | Nooksack River |
| 17110005 | Upper Skagit River |
| 17110006 | Sauk River |
| Puget Sound | |
| 17110007 | Lower Skagit River |
| 17110008 | Stillaguamish River |
| 17110009 | Skykomish River |
| 17110010 | Upper Snoqualmie River |
| 17110011 | Lower Snoqualmie River |
| 17110012 | Cedar River |
| 17110013 | Green River |
| 17110014 | Puyallup River |
| 17110015 | Nisqually River |
| 17110016 | Deschutes River |
| 17110017 | Skokomish River |
| 17110018 | Hood Canal |
| 17110019 | Puget Sound |
| 17110020 | Elwha River |
| 17110021 | Lake Cresent |

**Appendix M. WDFW Administrative Regions and Contacts**

## WDFW ADMINISTRATIVE REGIONS

# File Contains Data for PostScript Printers Only

## AND LIST OF REGIONAL HABITAT PROGRAM MANAGERS

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